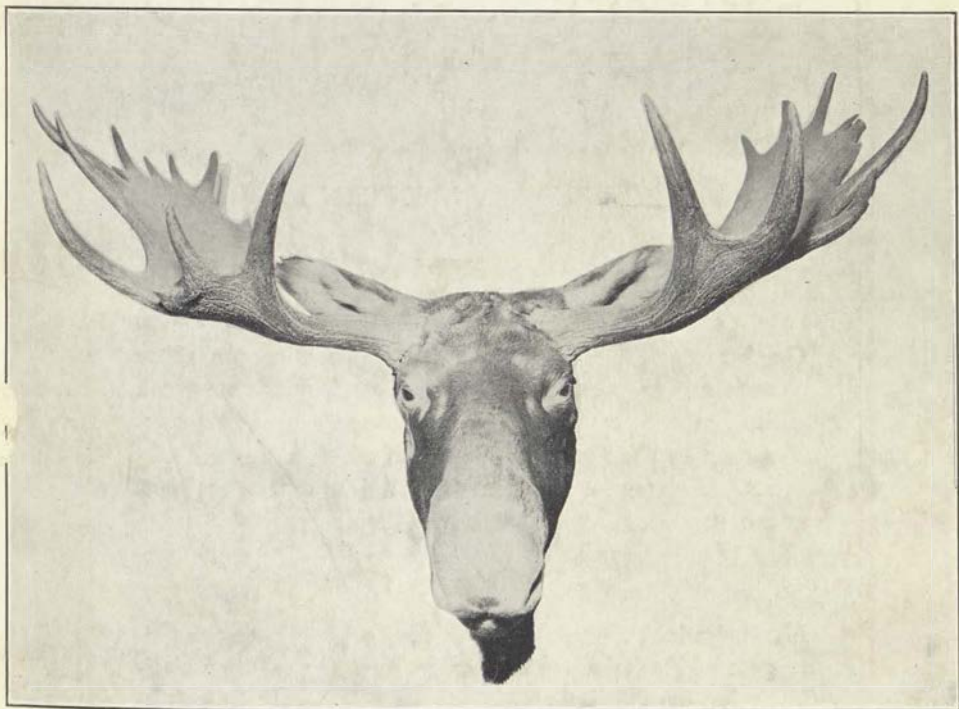


THE FORESTRY KAIMIN



American Moose

1915

1927

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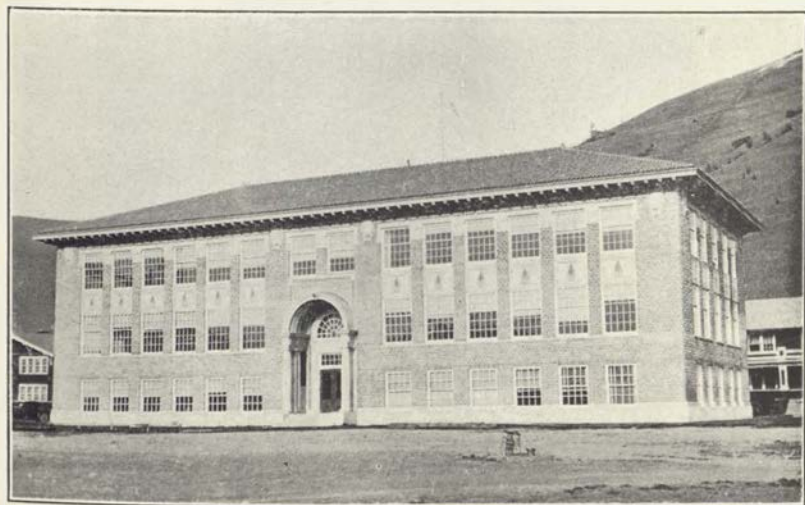
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As great oaks from little acorns grow, so we have
grown from this



THE OLD SHACK
Birthplace of Montana's Forest School

to this.



PINCHOT HALL
Present Day Forestry School



Photo by U. S. F. S.
WESTERN WHITE PINE



DEAN T. C. SPAULDING

A twinkling eye, a merry smile, a thin briar pipe, that's "Tom." Ever enthusiastic, loyal, helpful and sincere to his school, his students, and the woods.

To him, we, members of the Forestry Club of the University of Montana, respectfully dedicate this volume.

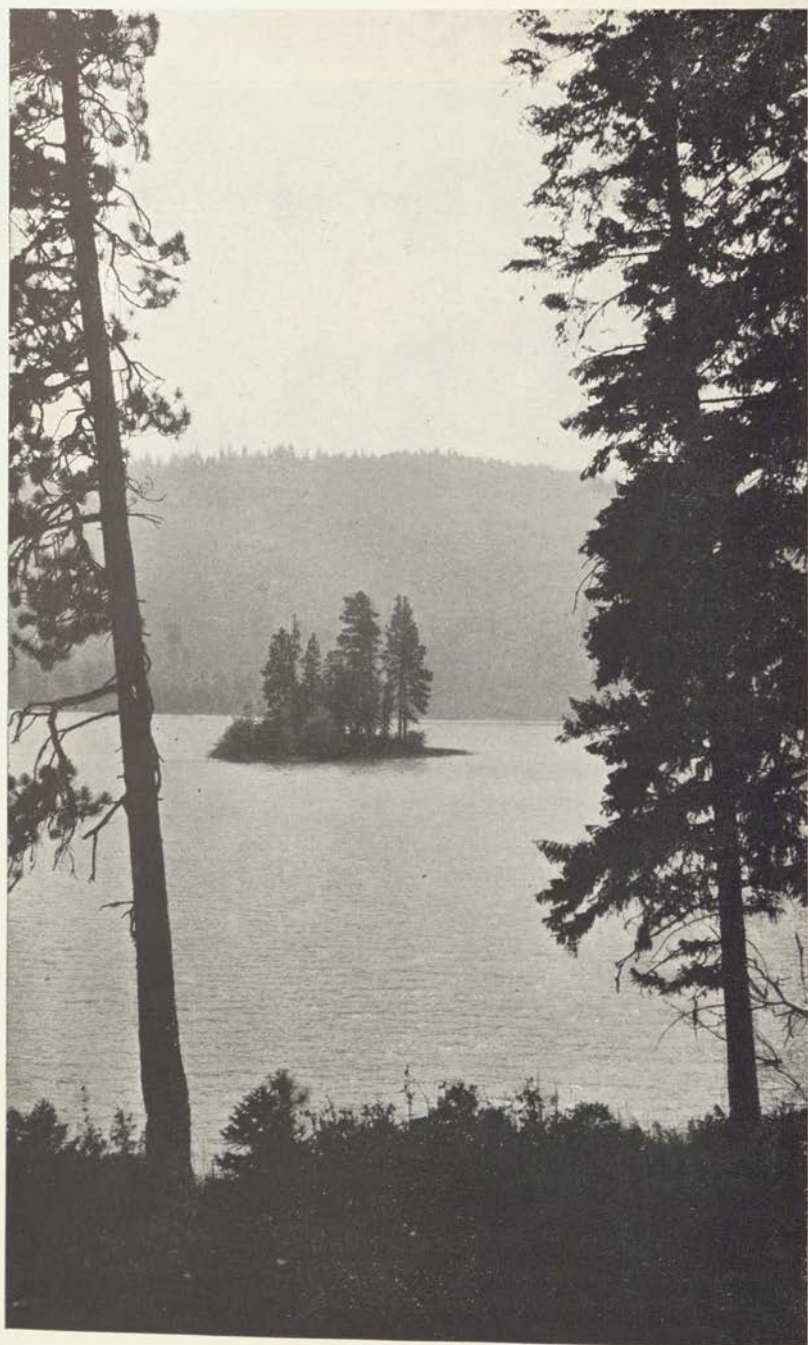


Photo by U. S. F. S.
MONTANA IS NOTED FOR ITS FOREST SCENERY

THE FORESTRY KAIMIN

1927

MAY

1927

Published Annually by

THE MONTANA FORESTRY CLUB

Montana State University

Missoula, Montana

Nelson H. Fritz, Editor

Charles Bloom, Bus. Mgr.

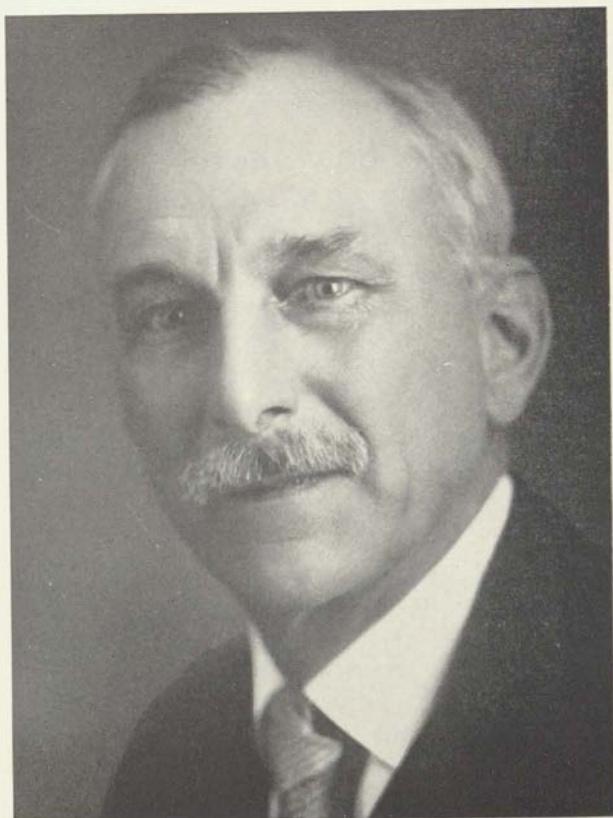
ASSISTANT EDITORS

Kenneth Davis

Clarence Spaulding

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DR. C. A. SCHENCK

CHARLES A. SCHENCK—AN APPRECIATION

BY DEAN A. L. STONE.

"Forestry is something more than the technical work of conservation or reforestation—it is inspiration and education."

We of Montana are able to understand the full significance of these words, spoken by Provost Henry S. Graves of Yale, formerly chief forester, upon the occasion of his recent visit in Missoula. We understand it because it has been our privilege to enjoy the acquaintanceship of Dr. Charles A. Schenck and to hear his exposition of the forestry idea and the forestry ideal.

For two years Dr. Schenck has been a member of the faculty of the School of Forestry at the State University of Montana; for two years his lectures have given inspiration, his personal conferences have contributed encouragement, his fine personality has compelled recognition of the fundamental principle of the profession.

Dr. Schenck's influence has extended, too, beyond the ranks of foresters. As he has given to the men of the profession a finer and a broader conception of the duties and the responsibilities of their calling, so has he effected a better general realization of the meaning of forestry. His presence upon the Montana campus has been far-reaching in its influence.

As a matter of fact, there are few countries in the world where the influence of Dr. Schenck has not been felt. His spoken words, eloquent with inspiration; his written words, convincing by their impressive presentation of his subject; his personal example, illustrating his sincerity and enthusiasm—all these have contributed greatly to the promotion of the forestry idea the world over.

He is too well known to make necessary here any detailed review of his accomplishments in forestry. It is enough to say that his word carries weight wherever forestry is discussed; that his opinion is valued as that of one who knows and who believes.

Inspiration and education—these certainly Charles A. Schenck brought to the Montana campus and these, just as certainly, he left here. The School of Forestry is better for his presence and so is the entire University. The memory of his sojourn here will always remain as an encouragement to greater effort and more earnest endeavor.



"MA HOME"

Just a little whiff o' balsam,
Just a little patch o' green,
By a little lake where fancy bids me roam,
Moon a-shinin' through the birches,
'Skeeters hummin' on the screen,
Of a little rag o' canvas,
That's ma home.

—Anonymous.

THE LONG-BELL FORESTRY PROGRAM IN WASHINGTON

J. B. WOODS, Forester.

The territory in Southwestern Washington tributary to the city of Longview constitutes one of the very best timber producing regions in the United States. A deep, fertile soil, served by a mild climate with abundant rainfall, naturally would indicate tremendous agricultural possibilities, but the hills are high and the valleys narrow, and for many years to come at least 90 per cent of this area can best serve man by growing forests. An average growth rate of 1000 feet per acre, per annum, on a rotation of one hundred years is not an unreasonable expectation, providing we are able to give some silvicultural attention to the growing forest in the way of thinnings.

Considered from other angles, reforestation is promising as a short time investment here. The lumber companies operating in this region as a rule do not care to dispose of their cutover lands until such time as they have completed working out an operating block. Under the careless manner of handling which has characterized the past, such blocks of cutover land usually are less than 50 per cent restocked. They have little sales value as agricultural land and their values as forestry investments (which is of course speculative) are very seriously impaired in the eyes of would-be purchasers because so little growing timber is present. In short there is not much market today for semi-barren cutover lands. The State of Washington has made some purchases, which, I am told, average a cost of \$1.50 per acre.

But being obliged either by lack of market or by sound operating policy to hold his lands, the lumberman finds it necessary to protect such cutover areas from fire, at least in the proximity of his logging operations. And during the past two or three years he has in effect extended this protection to cover all of his cutover lands because the forest fire association which operates in Western Washington has put into effect a policy of protecting cutover lands, and all land owners who contribute voluntarily, or through the channels of assessment by the State, are paying for the protection of their cutover lands. Because such protection is being given, it is expected that twenty years hence we shall see a very different condition of restocking on the cutover lands left by logging operations from now on.

But for purposes of this discussion let us consider the fact that the land owner is paying for protection of his cutover lands. He also is paying taxes, and in effect paying interest on such money as he has invested in such lands. To this extent then, he is

paying for protection of a growing crop of trees—whether he has the crop or not. So his investment in a new forest crop will be greater than that in half barren lands only to the extent that he spends money to plant trees, plus interest on such money. I am convinced that well stocked land, carrying growing trees from 10 to 30 years of age will have a good market value here on this Coast within a comparatively short time, and that this market value will be enough greater than the value of barren land to justify the expenditure of the few dollars per acre, getting the crop started on barren places where there are no seed trees available.

Of course one can spend a great deal of money planting trees on a relatively small area. Our own experiments indicate that probably we can obtain fair reproduction of redwood and Port Orford cedar direct from seed for less than \$5.00 per acre. Until we know more about the efficacy of certain new chemicals in making seed distasteful to birds and rodents we cannot say that we can reproduce Douglas fir direct from seed as cheaply as we can grow and plant seedlings. We know that so far our results from direct seeding with fir have been practically nil, and the cost of obtaining the seed is such that we cannot afford to put anything like Nature's prodigal sowing upon the ground. Planting with nursery stock has cost us all the way from \$6.00 to \$12.00 per acre, including cost of stock. But I am happy to say that our lowest costs cover our most recent plantings.

Our attitude toward reforestation here in this region is, briefly, that we recognize that this is a timber producing area; we expect to remain here permanently; we intend to reforest all our lands by aiding Nature where necessary at a rate equal to the yearly denudation, although of course from one to three years behind the saws. We also aim to encourage everyone else in this locality to grow timber, not only to the end that we may have a permanent supply to draw upon in addition to our own forests, but in order to insure permanent prosperity to the cities and towns of this locality. This idea is gaining considerable headway, and we have the active cooperation of the Chambers of Commerce of practically all the communities in the Lower Columbia and Cowlitz River valleys.

With respect to our own lands, the practical working plan in brief is this: as soon as practicable after logging—preferably in the Fall—all slash is burned under the direction of trained men and with adequate protection of surrounding property. This is in accord with the Washington state laws. Areas which are within a reasonable seeding distance from standing timber are left alone until a good seed year has come and gone, then the areas which appear to be left bare of natural reseeding are planted. In an operation like ours, cutting from 2,500 to 3,000 acres per year, it usually follows that there are interior zones which cannot be expected to reseed naturally, for a long time, so our nursery facili-

ties are intended to provide planting stock sufficient to take care of from one-third to one-half of our yearly cutover areas. We have no evidence so far that reproduction from stored seed is a reasonable expectation, but we shall be very glad to find ourselves mistaken. Further if our experiments show that direct seeding will accomplish our purpose more cheaply than outplanting of nursery stock, we shall not hesitate to change our plans. But our chief object is to get trees back onto the land as quickly as possible. We do not leave seed trees because the stands upon which we are working are composed largely of thrifty timber, and our investment in standing seed trees would be fully as great as the cost of artificial planting, taking all the area as a whole. Further, our observations indicate that a large percentage of seed trees would be blown down before they could accomplish their mission.

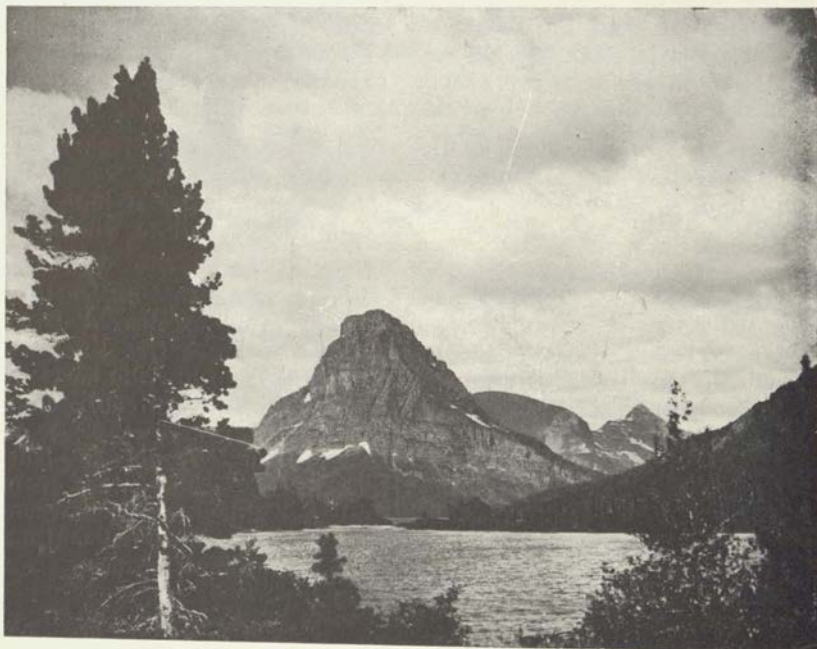
As an established operating practice we cut all snags taller than 15 feet at time of logging; also where practicable we cut to ridge lines so as to leave a fringe of standing timber at high elevations to throw seed in the direction of the prevailing winds.

For protection of the growing forest from fire we have evolved a crude "compartment" system by choosing certain abandoned logging spurs and connecting them up by cleared strips where necessary. Along the outer edges of these fire lines we plant alder seedlings. Our purpose of course is to provide barriers of green broad leaf trees from which we can work in controlling fires that may start in any compartment. At present these compartments run from 100 to 300 acres in area. We do not plant the tramways solidly because we wish to leave the centers open for future use as roadways. We find that alder does well when properly planted, regardless of elevation. We are experimenting with other broad leaf species but so far alder shows up best.

In selection of species for our future forest we have taken what may appear to be a radical step. We aim to replant our rich creek bottoms with redwood; wet spots where red cedar has grown before we are replanting with Port Orford cedar; in place of hemlock on the high ridges we use western white pine; and for all the intervening country (which of course is more than half of the area) we use Douglas fir, but in some of the Douglas fir plantings we are alternating with spruce with the idea of having an intermediary pulp wood crop, after twenty-five or thirty years.

On last year's planting of redwood, which has gone through a dry summer, early freeze and several snow falls, we have less than 5 per cent loss, and excellent growth. On a small area of Port Orford cedar planted at the same time (March, 1926) we have only about 1 per cent loss and even better growth. This year we are planting 400 acres practically all to Douglas fir. Our nursery will be ready to turn out its first big supply for planting early in 1928, when we expect to plant from 1,500 to 2,000 acres.

Forestry personnel for the Longview Division comprises Omar Undseth, nurseryman, C. E. Kingsley in charge of field work. We have other technically trained foresters employed in planting. A. D. Read, who has had charge of the field work for more than a year, has been transferred to DeRidder, Louisiana, to take charge of a new enterprise just getting under way.



MONTANA'S PLAYGROUND—A MOUNTAIN LAKE

MOUNTAIN LAKES

A lake is the landscape's most beautiful and expressive feature. It is earth's eye looking into which the beholder measures the depth of his own nature.—THOREAU.

FOREST TAXATION ABROAD

By C. A. SCHENCK.

American foresters seem to imagine that, in the United States alone and nowhere else, forestry and the development of forestry are handicapped by excessive taxation.

As a matter of fact, the tax situation is nowhere favorable to forestry at the present time: the privileges enjoyed heretofore by the Central European Junkers have been abolished.

Three well known foresters, in charge of forest estates in three Mid-European states (Wurtemberg, Baden and Hessen), have had the kindness to supply me with the actual tax figures levied, in the year 1926, from the woodlands in their charge.

I. An estate of 1,500 hectares equal to 3,750 acres in the free state of Wurtemberg.

The estate is owned by the family of Count X.

It is stocked with spruce, fir and beech of all age classes. The rotation is one hundred years. The sustained yield amounts to ninety cubic feet per acre and year. The output consists of poles, pulpwood and lumber, the latter obtained in the sawmill situated close to the woods.

	Total in Marks	Average Dollars per acre
Federal Income Tax.....	\$14,980	\$1.00
Federal Property Tax.....	10,308	.68
Federal Sales Tax (lumber, logs, poles, pulpwood).....	4,806	.32
State and Town Property Tax.....	17,116	1.14
State Church Tax	1,921	.13
Town Church Tax	1,441	.10
State Special Tax for Home Building.....	1,574	.10
Compulsory Contributions to Workmen's Illness Fund.....	9,096	.61
Total.....	\$61,242	\$4.08

The income tax is, in the case given, 40 per cent of the grand-seigneur's net income obtained from the forests. The income tax being \$1.00 per acre his net income must approximate \$2.50 per acre while the total of the taxes is \$4.08 per acre.

II. A forest tract of 5,000 hectares equal to 12,500 acres in the free state of Baden.

The tract is situated in the Black forest and is stocked with spruce, fir, beech and Scotch pine.

The average stumpage is 7,000 feet per acre. The tract is jointly owned by a dozen lumbermen, by some private parties and by the state of Baden.

	Total in Marks	Average Dollars per acre
Federal Income Tax, Federal and State Property Tax, Sales Tax and "Ground-tax".....	\$114,000	\$2.28
Church Taxes and Special Tax for Home-building are Levied from the Various Partners Individually and Cannot Be Given	?	?
Compulsory Contributions to State Road Fund.....	6,000	.12
Compulsory Contributions to Workmen's Illness Fund	18,543	.37
Total.....	\$138,543	\$2.77

It is impossible, in this case, to say what percentage of the income is consumed by taxes. Since the annual net, per acre of this property, cannot exceed \$5.00, the taxes consume, in my opinion, over 50 per cent of the net.

III. Miscellaneous woodlands in the free state Hessen.

Here, the forester has charge of twenty small village forests and of a small state forest adjoining them; in addition, he has general supervision over all family forests and over all farmers' woodlots within his precinct. The sum total approximates 25,000 acres. The forester tells the following story:

- (a) The Federal Income Tax absorbs from 10 to 60 per cent of the net income. The tax is a progressive tax so that a rich man having an income of \$10,000 or more is required to pay 60 per cent while a small farmer and the farmer's handy man are required to pay 10 per cent of their income. It is irrelevant for the assessment of income taxes whether the income is obtained from property or through labor.

In the Hessen-cases, the income from the state forests, from the forests owned by the aristocracy and from the farmers' woodlots was, in the year 1926, negative: The gross expenses, for forest labor and for taxes, other than income tax, exceeded the gross revenue. As a consequence, no income tax could be levied.

- (b) The Federal Property Tax amounts at *least* to one mill and at *most* to $7\frac{1}{2}$ mills of the "assessed" value of the property. The minimum of one mill is levied from poor folks and from septuagenarian owners. The maximum of $7\frac{1}{2}$ mills is levied from wealthy middle aged owners. For this federal property tax the woodlands in this part of Hessen are assessed at a much reduced scale:

Forests of the aristocracy at 180 marks per hectar, equal to \$18.00 per acre.

Farmers' woodlots at 60 marks per hectar, equal to \$6.00 per acre.

State forests and communal forests are not required to pay a federal property tax.

- (c) The Federal Sales Tax absorbs $7\frac{1}{2}$ mills of the gross value of all products obtained from a forest regardless of the expenses incurred in obtaining them. In the district in question the tax is based on the assumption of an annual gross revenue of \$2.00 per acre of state woodlands, communal woodlands and woodlands of the aristocracy, and on an annual gross revenue of 50 cents per acre of farmers' woodlands.
- (d) The so-called Ground Tax is, as a matter of fact, a state tax on forest property and not on soil property as its name might make it appear. There are levied between two mills and four mills, in this case, of the forest values assessed *without* any

reduction or deduction. Consequently, the assessments exceed those given sub (b). There are assessed:

Forests of the aristocracy at 940 marks per hectar, equal to \$94.00 per acre.

Farmers' woodlots at 650 marks per hectar, equal to \$65.00 per acre.

Town forests at 800 marks per hectar, equal to \$80.00 per acre.

State forests at 850 marks per hectar, equal to \$85.00 per acre.

These values are actual values of today; they are relatively low; the forests, in this section of Germany, are poorly stocked; some 70 per cent of their product is minor fuel wood; they consist of oak coppice in process of transformation into high forests or of brushlands thus transformed and bearing their first crop of pine or spruce. While the values given are low, I doubt whether any buyer could be found at these prices, under the conditions prevailing today.

- (e) The compulsory contributions to the State Forest Protective Staff: The contributions are levied from small villages and from private individuals who do not keep, in their woodlands, a forest ranger of their own. Their woodlands are protected, as a consequence, by the state staff. The tax varies between .58 marks and 1 mark per hectar, or between 6 and 10 cents per acre.

- (f) The Compulsory Contributions to the Forest Workers' Sickness Fund have been in 1926:

For state forests 1.93 marks per hectar, equal to 19 cents per acre.

For town forests .50 marks per hectar, equal to 5 cents per acre.

- (g) In addition, there is a Federal Inheritance Tax levied from the heirs at the owner's death which means to say that it is levied, approximately, every thirty years. The inheritance tax fluctuates between 2 per cent and 60 per cent of the value inherited, the percentage being governed by the blood relationship, near or far, by the total amount inherited and by the value of the property which the heir apparent controls prior to the inheritance. A rich man, in other words, pays a higher tax than does a poor man; a second cousin pays a higher inheritance tax than does a brother, etc., etc.

The tax assessor does not pay any attention to the actual condition of the forest; a young stand is taxed like an old stand; of course, as long as there is no income from the young stand there is no income tax (a); and as long as there is no "thinning" obtained from the young stand there is no sales tax (c).

One thing is certain: Forestry is overtaxed in more countries than in the United States.



A WESTERN MONTANA SAWMILL Photo by U. S. F. S.



LOGGING IN LINCOLN COUNTY MONTANA Photo by U. S. F. S.

FOREST FIRES AND EROSION

By HOWARD R. FLINT, United States Forest Service.

A striking example of the effect on erosion and surface drainage of the removal of forest cover was afforded on August 13, 1924, as the result of a torrential but not exceptionally heavy rain which fell over the Fly Creek fire area in the St. Joe River country in northern Idaho. The nearest records of precipitation in this region are kept at Avery, Idaho, some 21 miles distant westerly by air line, and at Haugan, Montana, about an equal distance northerly. The precipitation at Avery for August 13 was 0.15 inches, and at Haugan it was 0.51 inches. There is no reason to believe that the downpour at Fly Creek was substantially heavier than at Haugan. Most of the precipitation in the immediate vicinity of Fly Creek fell within a very short period of time, probably within an hour during a severe thunderstorm. The rise produced in the St. Joe River was noticeable, but very small. During early July, 1924, a severe fire swept over this area of some 2,000 acres which had previously burned in 1910. The new forest cover resulting from the 1910 fire was a rather dense stand of the brush and young timber growth typical of the western white pine region. Before the 1910 fire, the area bore a large volume, perhaps 40,000 board feet per acre or more of green coniferous timber. This stand was killed by the fire but very little of it was actually destroyed, the dead trees remaining standing or down on the area to form a vast quantity of fuel in dry weather. The 1924 burn was fairly clean, leaving only a portion of the heavier pieces of fuel. The soil was the fine grained, fairly deep, light soil with small pieces of broken rock as is common over a large part of the St. Joe River region. The slopes are very steep, probably averaging about 75 to 100 per cent.

Probably thousands of tons of ashes, charcoal, lighter surface soil, small stones and pieces of wood were washed off the steep slopes, gathering momentum and volume as it proceeded, and much of the material was carried to the creeks and into the St. Joe River. On August 14 after the rain, the river just below the burned area turned a dull chocolate brown from the load of sediment and charcoal which it carried, and the same effect was noted later far down the river. A heavy coat of silt was deposited in all places of slack current. Fishing was out of the question for a couple of days, but whether or not any fish were killed by the deluge of mud and wood ash, is not known.

Heavy slides of dirt, rock and dead timber came down several of the steeper gulches, blocking the river channel one-fourth to one-third of the way across in two or three places. On the

burned area the soil which was not washed off appeared to have absorbed very little water except where pools collected in small depressions.

In the surrounding 1910 burn still covered with green brush and young trees there was no visible evidence whatever of erosion. The streams coming from such areas remained perfectly clear and much of the rainfall was evidently absorbed by the humus and surface soil.

With such a striking effect from a burn covering only a fraction of one per cent of the total drainage of the river it is difficult to imagine what the effect might have been had a similar burn covered ten per cent or more of the drainage. It seems certain that had the St. Joe River been used for power or irrigation purposes even this small fire would have done material damage in filling reservoirs and ditches with silt, for much of the material was so fine that it was carried for many miles before deposition.

As for the burned over area, it was left, over most of the tract, completely denuded of vegetative covering and of humus. Over limited areas where the soil was originally thin, the mineral soil was removed to the underlying rock. Unless artificial planting is resorted to, tree growth will return to the area only by the slow process of invasion by seeds, chiefly wind borne, from trees outside the limits of the burned area. To establish a young forest of tree species by this method will require many years, perhaps a half century or more, during which the land will remain unproductive, although it originally carried an excellent crop of timber

(Continued on Page 42)

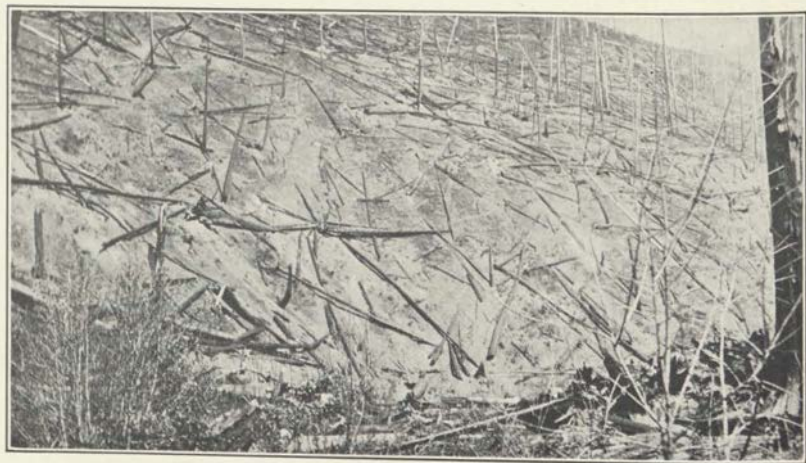


Photo by D. S. Olson, courtesy U. S. Forest Service.

An area completely denuded of vegetative cover and humus. Tree growth will return naturally only by the slow process of invasion by seeds wind-borne from a distance.

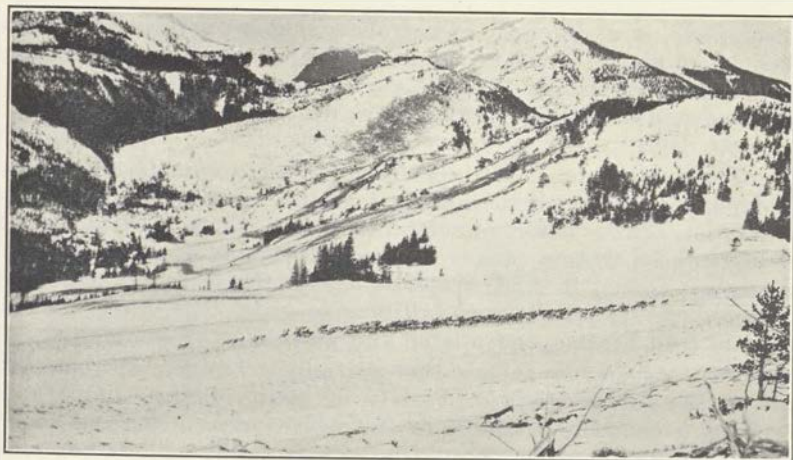


Photo by U. S. F. S.
ELK ON WINTER RANGE, FORD CREEK, LEWIS AND CLARK
NATIONAL FOREST

ELK FORAGE IN MONTANA

T. LOMMASSON, U. S. Forest Service.

During the past ten years a widespread study has been made of the various elk herds in Montana. Of these the Northern Herd is the largest, numbering 17,000 head by the latest count made in February and March, 1927. This herd ranges from Yellowstone Park north into the drainages of the Gallatin and Yellowstone Rivers during the winter, while most of them summer in the Park. The Northern Herd is distinguished from the Southern Herd, which ranges from the Park south into the Jackson Hole country in Wyoming.

The Sun River Herd, which is the second largest in the State, numbering about 4,000 head, ranges on Sun River on the Lewis and Clark National Forest, and across the Continental Divide, where it intermingles with the Spotted Bear Herd from the game preserve of the same name, returning to the Sun River range for the winter months.

The studies which have been made have been confined largely to these two herds, since they are largest and represent the major problems in elk management in the State at the present time. While the work was designed primarily to determine the needs of these herds for use as a basis for a game management plan under which they would be perpetuated, considerable information pertaining to the habits, condition, food, and other features, has been obtained.

Information on the feed requirements of these animals during the various seasons and under differing natural conditions, while

incomplete, is of interest. They show that by natural choice the variety of plants eaten do not differ materially from those taken by domestic stock. By force of circumstances, however, their diet is broadened to include many species which would be used to only a slight degree under ordinary conditions.

The winter ranges of these animals were originally the valleys and prairies to which they drifted as the winter snows began to cover the forage on the summer ranges. With the advent of settlement these winter ranges became farms and ranches and the game was forced to find winter range in the mountains and the high valleys where the snowfall was so great that during severe winters feed became unavailable and starvation often resulted.

On the summer ranges there is ample forage. During this period the elk find a wide variety of plants to their liking and exercise a constant selection in its choice, picking a bunch here and there and moving on to find others. The grasses are preferred as a staple diet, while these are mixed with various weeds and browse species, but to a more limited extent. The amounts of the various plants taken varies between widely separated sections of the State due chiefly to the difference in the variety and abundance of the species available. The grasses, however, lead in the amount consumed and are grazed throughout the year when obtainable. The weeds, while taken during the summer months to some extent, seem to be most palatable during the autumn months after having been frosted. In contrast to this, domestic stock, especially sheep which prefer weeds as a diet, leave this class of feed for the grasses after frost. This change in choice of feed by the elk may be due in part to the fact that the drift has begun to the winter ranges by the early fall months, and that the elk remain in the timbered areas where weeds are abundant until forced out by the snow.

Aquatic vegetation forms a part of the summer, as well as the winter, diet. Elk have the same habit as moose in obtaining this class of feed. They wade into the shallow lakes and marshes shoulder deep, and plunge their heads beneath the surface to bring forth the lucious root and stem of some plant growing from the bottom. The warm springs provide green cresses during the winter months and these plants are extensively eaten wherever found.

The diet during the winter months is gauged largely by the severity of the winter. During mild seasons the cured grasses and weeds are available as well as the browse, and the elk winter well with a minimum of loss. Severe seasons, however, cover the low-growing vegetation with snow, and the animals are forced to subsist on the browse and tree species. With only a nominal depth of soft snow much feed is obtained by pawing the snow away and exposing the grass. However, when the snow becomes deeper and a crust forms this method will not suffice, and a straight diet of branches, twigs, needles and whatever else may be available on

windswept ridges which may be exposed, is all that can be obtained. These do not fulfill the requirements of the animals, and they rapidly become thin and weak on this coarse diet. Infestation by ticks also adds to their plight, and many succumb during such a season.

The classes of forage may be roughly divided into two groups, that used in the months of abundance, and the fare which is taken by force of necessity during the winter months. While these lists are not complete, they are representative by groups of the species taken by elk in Montana during the two main seasons.

Forage on the high ranges, to which the drift moves progressively as the summer season advances, offers a wide variety of vegetation for the discriminating tastes of these animals. Of the grasses the fine-leaved fescue (*Festuca*) is in greatest demand, followed closely by the coarser wheat grasses (*Agropyron*), poreupine grass (*Stipa*), pine grass (*Calamagrostis*), sedge (*Carex*), brome grass (*Bromus*), June grass (*Koeleria*), blue grass (*Poa*), *Melica*, *Cinna*, *Juncus*, *Agrostis*, *Torresia*, *Phleum*, *Aira* and many others occurring in lesser quantities. Grasses make up the bulk of the spring and summer forage, but these are supplemented by various weeds, among which are dandelion (*Leontodon*), mountain dandelion (*Agoseris*), balsam root (*Balsamorhiza*), dog-tooth violet (*Erythronium*), blue camas (*Quamasia*), hawkweed (*Heiracium*) *Arnica*, thistle (*Cirsium*), larkspur (*Delphinium*), *Aster*, *Potentilla*, and many others occurring in the particular region.

Like domestic stock, elk require some of the coarser plants to balance their diet. To meet this need they browse lightly during these months on willow (*Salix*), aspen (*Populus*), yellowbush (*Chrysothamnus*), shrubby cinquefoil (*Dasiophora*), snowberry (*Symphoricarpos*), rose (*Rosa*), serviceberry (*Amelanchier*), alder (*Alnus*), inkberry (*Distegia*), Sage (*Artemesia*) and others. The variety of feed used will vary with the ecological associations in the region so that the species used extensively on one range may be used to a lesser degree on another.

With the advance of winter the more succulent plants disappear, and as the snow deepens and increasingly less feed becomes available, the trend is toward the shrubby types of feed. During the autumn months the frosted weeds, tall larkspur, lupine (*Lupinus*), thistles, fireweed (*Chamaenerion*), *Aster*, *Arnica*, cinquefoil (*Potentilla*) and other taller species are taken readily. During this period and up to the time the snow becomes settled and crusted the elk remain in the timber and in the gulches varying their diet with sedges, which are taken in considerable quantity, such grasses as are available and browse.

As the herbaceous vegetation on these areas becomes covered with snow, the drift is to the windswept ridges where the forage is still exposed. These are grazed very closely, the entire stand

of vegetation being consumed. Parts of the herd drift to the thickets and the browse stringers along the creeks, often moving from place to place in search of food. During the severe winters nearly every kind of available browse is taken, generally the entire annual growth being consumed, willow, sage, shrubby cinquefoil, yellowish, birch, aspen, rose, serviceberry, snowberry, kinikinnik (*Arctostaphylos*), Oregon grape (*Odostemon*), buffalo berry (*Lepargyrea*), choke cherry (*Prunus*), low huckleberry (*Vaccinium*), conifer needles and cones, aspen bark and the tough beargrass (*Xerophyllum*) when nothing better is obtainable. Such a fare is not sustaining and the animals rapidly lose in weight and strength, and during the critical months of February and March, when the snow is deepest and heavily crusted and the food supply is lowest, the greatest losses occur.

The settlement of the original winter ranges of the elk has been responsible for the loss of thousands of these animals through starvation on the higher ranges. Active progress is now being made by the Government and private organizations jointly to provide winter range for the established herds in order to insure their permanency. The matter of winter feed on areas where new herds are being started by transfer of animals from the existing herds is one which is of great importance to their successful maintenance on the new range, and one which has not been given sufficient consideration in many cases. Adequate winter range is essential in order that the elk be insured against the hazard of severe seasons.



AN ELK HERD



ON BEYOND THE TIMBER LINE

THE SCHOOL FOREST

By T. C. SPAULDING.

The workshop of the Forester is the woods because it is there he not only places into practice those fundamentals he gained in classroom and laboratory but above all gains acquaintance with those minutiae of habits, of growth, of associations, the knowledge of which, in the future, means his success in the technical phases of his profession. As the hospital to the Surgeon, the court to the barrister or the laboratory to the Chemist so is the forest to the Forester, a necessary adjunct to his theory. The ablest man is that man best grounded in both theory and practice.

The School of Forestry has recently acquired the Fort Missoula Timber Reservation for its use as a School Forest and demonstration forest. This area was set aside by the War Department about 1878 for the purpose of furnishing a continuous supply of fuel and building material for Fort Missoula. Its exceptional stands of Yellow Pine, Fir and Larch and its accessibility guided the Department in its decision. None better existed—even in that day. It has remained, untouched by fire or trespass until its acquisition by the School of Forestry, through the courtesy of the War Department and the Forest Service.

Its 1,500 acres of forest lands bear stands varying in size from massive old Yellow Pines and Larches to dense areas of various aged reproduction. Every slope, aspect and site quality normally occurring within the Larch-Fir-Yellow Pine types in our forests can be found within its boundaries. An ample farmer-woodsman labor supply and an unlimited market for saw material, fuel material, etc., assures a ready sale for all material that may be designated for cutting.

Its nearest boundary is but little over a mile from the campus. By road the west entrance is three miles from the Forestry Building. Thus it is—the School Forest—a wonderful area for class, research, and eventually an Experiment Station—almost on the campus—a good beginning for the School's eventual ownership of many times that area of forest land.

THE YEAR OF THE GREAT HOT WINTER.

OTIS T. HOWD.

I was punching a half-breed roader
Down on Shoalwater Bay,
The year the nights came together,
Some called it the great dark day.

We hit the deck at sunrise,
But the sun never rose at all;
So we sat by the light of the lantern,
Waiting the breakfast call.

'Twas an event to call forth stories
Of wonderful times in the past,
I listened to marvelous stories
Till the Bull Cook's turn came at last.

"I was just a lad," he started,
"When I worked in Paul Bunyan's camps,
Darkness was nothing in those days,
For we had volcanes for lamps.

One year we were logging Missouri,
Before Bunyan came to the coast,
We had just finished building the Ozarks
To serve as a snubbing post.

We were working down an ice chute,
Almost across the State,
When the weather turned suddenly warmer,
Hotter than Satan's grate.

'Twas the year of the Great Hot Winter,
Hottest I ever felt;
Ice cakes turned right into steam
Without even stopping to melt.

Well, that was the end of our logging,
But Bunyan must look around,
So he left his ox behind him
And came to Puget Sound.

Well, when he reached the water
He picked himself a tree,
And dug it out into a boat
And so put out to sea.

'Twas cooler on the water,
And so he sailed around,
Till in the Caribbean Sea,
He finally run aground.

For days he tried to float her,
But it wasn't any use;
So he went and got his Blue Ox
To pull the old tub loose.

He gathered all the rigging
He could from near and far,
But chains much larger than your leg
Were stretched into a bar.

Well, all the gear he didn't break
Was melted by the heat,
And there's lakes all over Texas
Where the Blue Ox braced his feet.

But every bit of timber
Was pulled loose from that boat,
And still the old hulk laid there,
She simply wouldn't float.

Now many years have passed since then,
And it's drifted o'er with sand,
And trees have grown upon it,
Until it's solid land.

Now, boys, that's simply history,
As right as God above,
And the little isle of Cuba
Is the place I'm speaking of."

The Bull Cook finished up his tale,
And went about his task,
But there've always been some questions
I'd kinder like to ask.

But he is dead and gathered
To old Paul Bunyan's side,
And so I'll never know for sure
If that old codger lied.

WHY ENGINEERING

By I. W. Cook.

Forestry includes the application of most of the sciences. Engineering is involved directly or indirectly in most of the applications of Forestry. Management and utilization are the major phases of Forestry.

Forest Management uses surveying and mapping in all land location and area measurement in regulation, silviculture and volume determination. The ascertaining of volume and growth of trees singly or collectively is based largely upon engineering principles. Factors of site as altitude and slope are determined by surveys. The location and construction of all forest improvements depend upon extensive or intensive engineering. Grazing requires its topographical and type maps.

In fire protection a large part of the detection system relies upon maps. The best location of a lookout is that which gives the greatest visible proportion of area within the radius of sight. These seen and unseen areas can only be computed by engineering. The location of fires is usually determined by triangulation.

In utilization the more intensive engineering plays its greatest part. Products has its many refined mechanical and chemical engineering developments; logging its many intensive civil, mechanical and electrical engineering phases; and milling its mechanical features. The trend of forestry is toward greater emphasis on utilization, consequently greater will be the requirements for engineering.

Lastly, as a training in accuracy, dependability, ingenuity and self-reliance Engineering can not be excelled. Sterling's specifications for a good engineer which applies as well for a good Forester are as follows: "A good Engineer must be of inflexible integrity, sober, truthful, accurate, resolute, discreet, of cool and sound judgment, must have command of his temper, must have courage to resist and repel, attempts at initiative, a firmness that is proof against solicitation, flattery or improper bias of any kind, must take an interest in his work, must be energetic, quick to decide, and prompt to act."

TREES

We grow on mountains where the glaciers cry,
Infinite sombre armies of us stand
Below the snow peaks which defy the sky.
We know no man, our life is to stand staunch,
Singing our song against the avalanche.

CANADA'S NATIONAL PARKS.

PLANT ANATOMY AND ITS RELATION TO FORESTRY

BY J. W. SEVERY.

The development of any field of knowledge is usually accompanied by a demand for greater specialization, which requires a higher degree of technical training on the part of its workers. This is especially true in the field of Forestry at the present time. The depletion of the forest resources of the country is causing the "hit and miss" methods of the past to be rapidly done away with, and the development of a genuine scientific forestry program. At the present time it may be generally said that the man combining technical knowledge with practical experience is far more valuable than the man having only the practical experience.

The School of Forestry at the University of Montana early recognized the new point of view, and shaped its courses to develop technically trained men. Recognizing the fact that Forestry is really a phase of Applied Botany, a broad foundation in Botany was not only held desirable, but actually necessary. Botany was not so essential in the early days, when the main aim was to get the timber crop harvested and converted into lumber without paying any attention to the sources of future timber supplies, or the conservation of the timber supplies already at hand. Those days are past, for the most part. Our fast disappearing supplies of timber point to the fact that attention must be paid to the seeding and growing of the greatest possible timber crop on a given area, and to the efficient utilization of all materials in the harvesting and preparing of the timber for market. The successful forester of tomorrow then, must know the tree—the plant with which he is dealing. He must know its structure, its physiology, its relation to disease, and the influence of environmental factors upon growth, quality of product, etc.

Plant Anatomy occupies rather a unique position in reference to either Forestry or Botany. It is the foundation upon which the rest of the structure is built. Without a knowledge of anatomy the student can not really know physiology; without a sound foundation in anatomy and physiology, the student is not properly prepared for ecology or silviculture; and without a knowledge of all these, the student can not adequately understand the cause, effect, and control of timber diseases. To the botanist, of course, the study of anatomy serves another purpose. The study of structure is helping us to establish the relationships between plants, and the study of the anatomy of the fossil plants has made it possible to picture more or less accurately, the sequence of evolution among the plants of the past. However, such questions are only of passing interest to the forester.

A rather specialized phase of plant anatomy has to do with the microscopic identification of wood. A systematic study of this kind should serve two principal functions: (1) It should familiarize the student with the structural characteristics of most of the woods of commercial importance, and (2) It should give the student the training and practice necessary to distinguish between woods which under the naked eye or the hand lens look much alike. In most cases, an absolute identification can be made with the microscope.

A knowledge of the structure of woods is already of immense value in helping to solve practically all problems having to do with the utilization of forest products. As methods of utilization of forest products are refined and improved, this knowledge of structure will doubtless become of increasing importance. We know that there is a definite relation between structure and the ease of penetration of preservatives. Technical men believe that there is a relation between structure, and the durability and strength of woods, although this phase is little understood at the present time. The utilization of certain species for pulp-wood also seems to be closely correlated with structure.

In the early days, wood was plentiful, and there was practically no tendency to substitution. With the growing scarcity of some woods in particular, there has developed a tendency to substitute under the guise of trade names. In many instances, only a microscopic identification will serve to protect the buyer. For instance, there are five species of *Swietenia* so closely alike that they can be legitimately sold under the trade name "Mahogany." But in the Tropics and Sub-tropics there are many other woods which appear so similar to mahogany that they are oftentimes successfully substituted for it.

Sometimes a manufacturer buys some wood for a particular purpose under a trade name. He finds that this wood is particularly adapted to his purpose. When it comes to re-ordering, he must know the species in order to make sure of getting the same wood. Such an instance occurred when the writer was a graduate student at the Shaw School of Botany. A certain manufacturer of umbrella handles had made a purchase of some tropical wood which he had found particularly desirable for his purpose. He sent a specimen of the wood in to the graduate school for identification, and he was thus enabled to order the same wood by its specific name.

In the gaining of a professional training no one subject is important to the exclusion of all others. Plant Anatomy is no exception to this statement. The writer has simply tried to point out a few of the ways in which a sound foundation in Plant Anatomy may benefit the student of Forestry.



ONLY NATURE CAN PRODUCE SUCH SCENES AS THESE

EDGES

The ruthless sharpness of a western mountain line
Has slashed into the turquoise,
Turning it to opal. Streams of crimson,
Oozing from the mound, trickle slowly down the mountains.

Drip into ravines
And are washed away by mist.

It's strange this sharpness should be leaving
Ragged edges in me, too.

MARY FARNSWORTH.

"THE DRIVE"

BY PAUL BISCHOFF.

It is early June. For the past two weeks, it has been raining gently, for several hours each day. For the last week, the bulls, belly deep in mud, have been skidding timber. The eight-wheel wagons and the chingas have been mired in the roads, and have been abandoned, and new roads cut around them, through the Jungle.

The Indians have been coming in, mud to the eye brows. The ground, after the six dry months, has taken up water like a sponge, until now it has reached the saturation point, and the roads and trails are running tiny rivulets of muddy water. The water in the creeks has already risen a few inches on the marks set by the woods boss.

The camp, after the fashion of tropical timber camps, is located at the top of a slight hill, for rainy season drainage purposes. In spite of this the clearing has now become a veritable mud hole. Two hundred Indians, milling in and out under the dripping thatch of bunk and cook house, have made this worse.

We reach camp, about three o'clock in the afternoon, and as we break into the opening in the Jungle a pall of smoke from the cook fire hangs like a moist blanket, over the clearing, melting into the low hanging grey clouds. It spreads from Jungle wall to Jungle wall, a few feet over the thatch gables of the house, as tho it were attempting to shut out the drizzle of rain, which is falling into the quagmire below. A quagmire, in which two hundred men eat, and sleep, and work, in order that My Lady, three thousand miles to the north, may grace her rooms with figured panels of mahogany.

We stop at the woods boss house just long enuf to hang out cruising shirts and hats, and to drop the guns and tally hooks in the dry, back of the charcoal brazier, gather towel and soap, and head down the arroyo for a bath. The house boy follows us down, to take our muddy clothes. The bath is followed by the climb back up the hill, thru the foot deep mud, which leaves us in about the same condition we were in, on arriving at camp. Yet we have the mental satisfaction, which the white man derives, from the application of soap and water. Then the snug peace of mind, of dry blankets and pajamas, with the water dripping monotonously into the puddles below the evaes.

Supper follows. It is a simple affair, meaning the evening meal. Wild hog meat, rice and beans, and the inevitable tortilla of the tropics, together with black coffee—and you get so that you like it, after a few years, providing you survive.

The barefoot Indian, "Tuctan," has refilled the coffee cups, and cleared away the supper dishes. Pipes have been filled with moist tobacco. The woods boss is stretched on the blankets, covering his bamboo krikri. We're both using the brief remaining moments of Jungle daylight, to wipe the accumulation of mud and moisture from the guns, spreading a bit of new grease on them, against the damp night air, of early rainy season. It might be a camp scene in any woods foreman quarters, were it not for the bamboo floor boards, and silico palm thatch of the roof.

The conversation, as is customary with conversations in mahogany camps, at the start of the flood season, swings to the ever interesting topic of the drive. There are more than two million feet of mahogany banked in the creeks, the arroyos, and on the roll-ways—some six thousand logs. It has been a fair sized camp, as mahogany camps go. The hauling season has been excellent, the roads have been dry and hard. The bull teams, thin from their last months' work, are cleaning up the few remaining logs, just to keep the crews busy, awaiting the floods. The brief tropical twilight has turned to dusk. The drizzle of rain has stopped, as gently as it began, some hours ago. But the eternal drip, drip, from the thatched eaves into the puddles below, continues.

For three days now the Mosquito Indian boys have been picked from the heterogeneous crew of natives, making up the camp. The Mosquitoes are selected for this work because of their amphibious characteristics. They make the best river men of the tropics, chiefly because they make sport, out of what, to the ordinary individual would be a man killing job. The tools have been turned over to them,—a new machete and a pike pole, or peavey, to each, and one kerosene storm lantern, to each three men. For days now, these boys have been loafing around the smoldering fire of the bunk house, smoothing the handles of peavies and pike poles, and whetting the machetes, to a razor edge. The tools, broken from the same crates, begin to assume individual merit, as their owners work them down. The conversation, just as in the foreman's house, circles around the coming drive. The pipe, stuffed with American leaf tobacco, passes from mouth to mouth, about the circle.

For a brief moment there is a chirping of insects and tree toads, a firefly, as big as our own locust, sails by, almost majestically. Now and then the Pocosol calls mournfully, from the Jungle outside the clearing. Then the calm of the tropics, settles over the clearing, with only the hushed noises of camp. The foreman's house has no walls, and from where I lie, stretched on the krikri, I can see the Indians around the fire, on the bunk house floor. Somewhere, in the rear of the bunk house, a Mosquito, or perhaps it be a Sumu, is softly playing a plaintive, pagan tune—the Swan song, of a conquered, brow beaten race. It is queer that the accor-dion should lend itself so aptly to their mournful music.

Old Pedro, the Indian foreman, leaves the bunk house fire, and comes over to squat on his heels, beside the kerosene tin, which serves us as a charcoal brazier. Lifting a live coal out, with caloused fingers, he places it gently on the bowl of his pipe. Pedro has been with me eight years now, and feels that he may take liberties. "Captain, Lo Aola, Lisambra, tra, oala, dis night," mixing in a word or two of English, with his excellent Moskito. That we should have rain, and that the rain should be sufficient to throw a flood before morning, was entirely possible, and the old man's prognostications as to weather were above the average.

If you have never heard a tropical rain start, you have a sensation to look forward to. Into a silence, which one finds, only in a tropical Jungle, after night fall, come the first large, soft drops. They strike in the mud of the clearing with the soft thud of a scorpion dropping from your bath onto a cement floor. They rustle thru the leaves overhead, and strike with re-sounding slaps, on the thatch of the roofs. It slips in quietly, unostentatiously—then suddenly you become aware of it, for all the world, like the distant patter of the hoofs of a company of cavalry. Faster and faster it comes. You raise on your elbows, in a sub-conscious attempt to meet it. And then, with a roar, it is on the camp. The flying mist penetrates every corner of the foreman's house. The fire that gleamed brightly in the bunk house, shows as a red dot, thru the sweeping sheets of wind driven rain.

Two hours later old Pedro comes back. The creek is up six feet, and is rising rapidly. Logs have started to move. It is a disagreeable sensation, this crawling out of warm, dry blankets, and shivering into the wet clothes of the day before. The woods boss, takes the lantern, and we duck into the full force of the rain in the clearing. Slickers are of no value, in this rain,—it pounds thru them. There is nothing left to do, but get wet.

Pedro has worked fast. It can't be more than mid-night, as we reach the creek. The cooks pit-pan is tied against the bank, and under his small shelter on board, the cook already has his kerosene tin coffee pots filled with steaming coffee. Number 1 rollway is breaking out logs, as we pass it. Number 2 is holding off, waiting for another foot or two of water. As we reach Number 3, 4 and 5 rollways, an hour later, the boys are breaking out logs, their lanterns gleaming more like fireflies than lanterns, thru the driving sheets of rain.

We stay with the crew at No. 5 rollway, until the first grey streaks of dawn. Another half hour, and the rollway is clean. As the last logs roll in, a crew of boistrous, rain-soaked naked Indians, pike pole of peavey in hand, take to the logs, more like a crowd of care-free boys, in a summer swimming hole, than a crowd of men, who have worked on the business end of peavies, all night long.

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FORESTRY SCHOOL NURSERY A STATE BENEFIT

BY DORR SKEELS.

The School of Forestry in the State University has completed through the offices of the President and the Chancellor a co-operative agreement with the federal government which provides for the establishment adjacent to the University campus of an immense forest nursery. This nursery will be developed into the largest forest school nursery in the United States. The co-operative agreement is under the terms of the Clarke-McNary Act and provides for an annual production of from one million trees to two million trees suitable for planting on non-irrigable farms in eastern Montana.

The distribution at a nominal cost price of this nursery stock each year among the farmers and ranchers of the state will be under the direction of the Extension Service of the University located in the State College at Bozeman. Approximately half of the costs of the production at Missoula and the distribution from Bozeman of the nursery stock is defrayed by the federal government and the balance is paid for by funds provided by the State University.

The agricultural population of Montana has great need for this service on the part of the State University. Whatever may be the natural reasons that the larger part of the "plains country," prairie, and non-irrigated farm areas of eastern Montana are treeless, it is known that a large variety of trees can be made to grow there if given proper culture.

Tree planting is probably one of the most important things that a farmer can do around his eastern Montana farm to add to its comfort, beauty and value. Both at the State College and at the University a great volume of correspondence is received from ranchers and farmers who are actually tree hungry. The prairie farmer craves trees. Besides the aesthetic value of trees, they will provide windbreaks for his crops and shelter belts for his livestock, improve moisture conditions for his garden through their snow drifting effects and furnish fencing material and fuel for domestic use.

The Clarke-McNary act of Congress became a law in May, 1925. It provides for various sorts of forestry cooperation between private owners, states' governments and the federal government. Some of these activities are along the lines of fire protection and some provide for cooperative state forestry. Section 3 of the act provides for the production of nursery stock for farm planting, in this case through the agency of our local forestry school; and section 4 provides for the distribution of nursery stock among the

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SOME LOGGER

BY OTIS T. HOWD.

In the prehistoric ages
Ere the Swedes ruled Minnesota,
Fairest spot in all the westland
Was the woodland of Dakota.

'Twas a land of timbered ridges,
Long before the axe was known,
And there grew the largest timber
Where the sun has ever shone.

Many tales are told about it,
How it grew so very high
That the tops were broke and shattered
Where they rubbed against the sky.

And no man had ever ventured
In that forest deep and dark,
Till old Noah got to thinking
He would build himself an ark.

So he looked the timber over,
And decided it would take
Every tree, if he would carry
Every bird and beast and snake.

If he just could get it yarded;
There he had a serious doubt:
But Paul Bunyan finally told him
He would bring the round stuff out.

So he harnessed up his Blue Ox,
Took the big logs on the run:
Never even stopped for dinner,
Worked right through from sun to sun.

Many logs he dogged together,
Took three hundred turns a day;
Still old Noah hollered, "Faster,"
Said that snail's pace didn't pay.

Then old Bunyan got quite peevish,
Sent the loggers all to camp,
Started hauling in the sections:
He'd put Noah on the tramp.

But he bragged a bit too early;
Though each day he hauled eight score,
Noah cleared them off by noontime
And sat down and yelled for more.

Paul got madder than a logger,
Cussed and jumped upon his hat;
Noah was a damned slave driver,
Contract didn't call for that.

But old Noah only guyed him,
Called his ox a lazy slob,
Then to keep Paul Bunyan working
Put a bonus on the job.

Next Paul hooked upon a township
And the ox pulled with a will,
But the cable only parted
When it caught upon a hill.

Broke in twenty-seven pieces,
The Blue Ox sure had the power.
Then Paul set his splicing record,
Twenty-six within an hour.

But he never got discouraged,
He would still show Noah that
A true logger always finished
Any thing he started at.

So he hooked on to the ridges,
Pulled them all into the mill;
Then they say of real hard labor,
Noah finally got his fill.

Thus the task was finally finished,
Nor was that the only gain:
Naught was left in the Dakotas
But a large and level plain,

Save in just two places only,
Where the logging had begun,
And where all the refuse ridges
Were left drying in the sun.

First is called the Black Hills district,
There the ancient land still stands,
And the pile of broken ridges
Is Dakota's famed Bad Lands.

CHIPS AND SPLINTERS HACKED BY A FORESTER FROM THE TREE OF KNOWLEDGE

By C. A. SCHENCK.

I. Forestry.

1. Not national welfare, not dollars and cents form the basis and the object of forestry: The basis of forestry is nothing unless it be a holy devotion to a wonderful task.

2. There are three perpetual planks in a platform of forestry: Perpetuation of the nation; perpetuation of the woods; perpetuation of wealth. The trio is inseparable.

3. There is not a state in Europe, once monarchically ruled, in which forestry has failed to be established. Thus it is that forestry constitutes and continues to constitute a test problem of democracy in America where it has so far failed to be established.

4. Where there is no vision, the forests perish—and the people.

5. The commonwealth is a quadruped; farming, manufacturing, mining and forestry form the four legs; and trade is the head. Alas! If the forestry leg goes lame the quadruped will limp forever!

6. The problem of forestry can not be left to a solution by the states any better than can be left to the states the problem of railroading, of banking and of tariffing.

7. Our National Forests may be defined as forests within the nation but, owing to their inaccessibility, beyond the reach of the nation.

8. Deny it if you can: Town forests, if there were any, would be more useful than are national forests!

9. We could dispense with the enthusiasm of Arbor Days and Forest Weeks, of boy scouts and of women's clubs if capital were enthused for forestry.

10. Nothing will be conserved . . . not oil, not coal, not labor, not wood . . . unless it pays to conserve it.

11. In all natural resources, an unlimited competition involves an unlimited waste of all natural resources.

12. What is that forestry science, anyhow? The journalists must work, day by day, to get their paper out; the lawyers must work, day by day, to get the law suits off; the musicians must hack and hammer their pianos, day by day, to make a noise: The foresters, however, with both hands in their pockets, are sitting leisurely on swivel chairs while the trees are growing, automatically; and they call that game "the science of forestry!"

13. Conservative forestry is defined, by some people, through the phrase: Say "Wood"—and saw nothing!

14. At Missoula, there is found a symptomatic emblem of forestry emblazoned 38 times around Forestry Hall: It consists of one growing tree and of two double-bitted logging axes. Logging, this means to say, is as legitimate a part of forestry as is silviculture: We are doing the logging stunt, however, at the double quick.

15. The Clarke-McNary law of 1924 is a full vindication of the American lumberman accused, by some politicians, of "predatory wealth."

16. Log rolling is the worst kind of forestry because it destroys the forests; it is the worst kind of democracy because it destroys the demos.

17. Why should foresters be interested in the protection of wild life? Isn't life in America wild enough, notably in the cities? Why help it along in the woods, too?

18. It is not true that the foresters, in America, are beating round the bush.

19. A forester is a hunter; unless he hunts for game, he usually hunts for a job.

20. A forester is a man who helps the creator, the nation and the state; unfortunately, on the side of the two last named agencies, there is no reciprocation; and the forester is left to the grace of the Almighty: Which isn't so bad, after all.

21. Down with the Interstate Commerce Law! What is the sense of raising White Pines in N. H. when and as long as we can obtain them gratis from the primeval woods of Idaho?

22. Forestry, mind you, isn't a problem of botany: It is a problem of economics and, as such, notably a problem of transportation.

23. When conservation is at stake, I am tempted to proclaim, desecrating an old slogan: "In trusts I trust."

24. And here the president (a Lord, of course) of the English Forestry Association comes and expostulates when the multitudes admire his forest estates: "Yes, forestry is a good thing for everybody—except for the owner."

25. Good things cost money; so do good roads and railroads, good courts, good schools and good forestry. Somebody must pay for them; somebody,—either the taxpayer, or else the consumer. And, queerly, when the roads and the courts and the schools and the forests are bad, then and in that case somebody must pay for them, too: YOU!

26. Strange it is, but true it is: Forestry officers in Europe have charge of the forest-work; forestry workers, in America, have charge of office-work.

27. What is the "Forest" good for?

Foolish question! "For-rest"!

28. Verily, I say unto you: Karl Marx, the arch-socialist, is right, and 365,000,000 acres of American soil which are now classed as "Woodlands" will have to be classed hereafter as "Brushlands"—unless socialism comes to the rescue, or unless forestry in America is allowed to be a 6 per cent investment for \$10,000,000,000 worth of capital.

29. The miner puts his money into mines; the builder puts his money into buildings; the farmer puts his money into farms; and the forester puts his eloquence into forestry.

II. Morals and Religion.

1. I was born a Lutheran, of Martin Luther's creed; and I shall die a Lutheran, of Luther Burbank's creed.

2. The true aristocrat is a prince in the Kingdom of God a province of which is right here in Missoula.

3. The difference between a monk and a monkey is this: A monk is given to poverty, ascetics and obedience; a monkey is given to wealth, erotics and disrespect.

4. Typographical errors, in the scriptures, are very rare. I have found but one: It is contained in the sentence: "Blessed be the meek for they shall inherit the earth." Of course, earth is a misprint, and the *h* of earth should *begin* the word instead of ending it, so as to read "*heart*". The meek will inherit the heart: What use would they have for an earthly inheritance? They want hearts, nothing but hearts!

5. There are two kinds of Christians: The common kind says of a Sunday what Christ did; the rare kind does of a week-day what Christ said.

6. There are men and also a few women who have two soles at the bottoms of their shoes but no soul at the bottom of their hearts.

7. *Immortality:*

What mark a man has set,
What good a man has done
That is and constitutes
His immortality.
None other is worthwhile.
And this his deathlessness
Is measured by the count
Of true and loyal friends
Found mourning at his grave . . .
Rejoicing none the less
O'er having been his friends.

8. There can not be a spiritual life lead in heaven after death unless it be the continuation of a spiritual life lead on earth before death.

9. Prayer: Give me, oh God, plenty of hard work . . . and plenty of strength to do it!

10. Great is the man who causes two blades of grass to grow where one blade grew before.

Greater is the man who doubles the capacity, the quality and the safety of the world's work.

But the greatest is he who causes two eyes to smile that were filled with tears.

11. Bible question: What cruse does never fail when its contents are given away?

Bible answer: A cruse full of love: The more you give away, the more do you retain.

12. The poorest reason for doing anything is that everybody does it.

13. Big things when they are done loom up no bigger than do small things when they are done.

14. An unfailing recipe for success: Give more work to your employer than what equivalent he gives to you.

15. Some folks are so fond of hard work that they can watch a fellow engaged in it for many hours without ceasing to enjoy the occupation.

16. The greatest wrong is the failure of the wrong-doer to see it, to apologize and to make amends.

17. Beware of soft snaps! Soft snaps are hard to digest.

18. The line of least resistance is the line of least results.

19. This, then, is service: Doing an ordinary thing extraordinarily well.

20. There are four corner stones for your nation:

Religion—which the preachers give you;

Knowledge—which the teachers give you;

Morals—which the mothers give you;

Vision—which no others give you.

21. The most disastrous of all fears, a fear of which the many are not free is the fear of ridicule by one's peers, one's classmates and playmates.

22. Bliss, sought without, leaves you without bliss. Bliss, sought within, leaves you within bliss.

23. The world craves for the exceptional, the leading man: and the world laughs at the man who tries to be exceptional and leading.

24. It is significant that the atomic weight of gold is close to the atomic weight of lead. Gold and lead are a dozen times as heavy as are the essentials of life, oxygen, nitrogen and carbon. On these and on these alone is based manliness, health, energy, brains, resourcefulness and resiliency. Gold and lead are nothing but heavy drags for them.

25. Stick to the golden rule, and avoid the rule of gold!

26. It is more difficult to spend than it is to make money correctly.

27. Jazz is the pet music of the well-dressed proletariat.

28. Never mind trifles . . . except in your own affairs when attention to details spells success in wholesales.

29. The impossibilities of yesterday are the antiquities of tomorrow.

30. Service is the road to mastery; and self-denial is the road to self-respect.

31. There is no reason why a genius should not be a genuine, a genteel, and even a genial gentleman.

32. You are right! Life isn't worth living; life isn't worth living . . . unless it be devoted to a great cause; and no cause is small to which a life is devoted.

33. Man's life is like water: Some is muddy, and some is clear; some is smooth and some is turbulent; and some rises to the skies.

34. "Give, and it shall be given you": Joy, and love, and work. You may get them, also, by praying for them; but the result is less certain.

35. When anger is mute, the angels are loud.

36. True, charity should begin at home: But where, if anywhere, should it end?

37. Next time, when you are alone in the hills, arouse the echo by boldly hollering: "God!" Watch the result! You will have an unforgettable sensation . . .

38. We sneak of different forms of creed: Had we not better speak of different forms of worship?

III. Education.

1. Ignorance is bliss . . . provided that it results in a craving for knowledge.

2. Damn the school . . . when it acts as a sawmill in which different logs are made into lumber all evenly edged, all evenly trimmed and all kiln-dried alike.

3. Of all investments imaginable, knowledge is the best; you may easily lose the rest, by some misfortune; but knowledge sticks to you; and you may be better off after losing the rest.

4. Do not go to a college for a knowledge of books! The common libraries are full of them and will fill your every need. In the last analysis, all books are enlargements from two standard volumes containing all the wisdom in heaven and on earth: One is the Bible; the other is Noah Webster's.

5. Knowledge is like a magnet; it attracts more knowledge. Knowledge is like a tree which, once started, can not cease growing because it grows automatically.

6. Some people are wise; other people are otherwise.

7. The measure of your education isn't the length of your learning in literature but the breath of your usefulness in society.

8. College is a boarding house where knowledge is served at the table in lieu of meals. Alas! The college can cook the

meals for its boarders, but it can not force the boarders to eat them.

9. Voltaire is right: Woman is the riddle of the universe; and notably so of the universities, with co-eds.

10. Unless you obtain at your college what I call "a sense of proportions" you are wasting your time and your father's money on a college education.

11. Greek letter societies. All of them should be affiliated to the original Alpha Alpha Society founded by Achilleus some 3000 years ago. Alpha Alpha signifies "Aiei Aristeuein." For a translation ask Professor Wesley P. Clark.

12. It is hard knocks on the universities, here and abroad. that Edison, Burbank, Wright brothers, Westinghouse, Wannamaker, Walt Whitman and Elbert Hubbard were graduated from the university of hard knocks.

13. A curriculum is a sort of a race track paralleled by walls so high that the racers can not observe anything beside the track.

14. Modern education takes the water from the fountain of youth in the hills; puts it into iron pipes; conveys it to the city and to the village, on a downgrade and in the dark; and liberates it, that done, of a sudden and through a million faucets for innumerable purposes; and education is astonished when the water, thus treated, disappears in the sewerage of life.

15. Lessons in English: The English idiom is most illogical: What has a manager (e. g. of a baseball team) to do with a menagerie; or an infant (e. g. the baby found near Fort Missoula) with infantry; or iron (unless it be an andiron) with irony; or . . . anyhow, an adult shouldn't have anything to do with adultery.

IV. Politics.

1. The World War, instead of making the world safe for democracy has succeeded in making it ripe for bolshevism.

2. Aristocracy, as a form of government, seems to lay too much stress on two certain imponderables on which democracy seems to lay too little stress: Family is the one; tradition is the other. A family tree, unless it be too shaky, is a remarkably fine tree.

3. Why make with such ado over heroes killed in battle? Is it not easier to die for one's country than it is to live for one's country?

4. If you desire decorations, be present where decorations are being distributed—there is no need to be present where decorations are being earned.

5. "Privileges to no one," says Mussolini, forcing the naked truth to wear a black shirt;

"Privileges to no one," says the plutocrat, taking them all;

"Privileges to no one," says democracy, forgetting that democracy is a privilege in itself, all too much abused.

6. Plato opines that philosophers should be lords over all; Lenine opines that overalls should be lords over all: Why,—a philosopher might don overalls, too!

7. The democrats desire to alter the Bible text, in sundry places, so that it should read "republicans and sinners" instead of "publicans and sinners."

8. The League of Nations has sprung, it seems, a leak of nationalisms.

9. It is absolutely certain that the term "*democrat*" has nothing to do with the term "*demolish*" even if, undeniably, the two terms are half-alike.

10. There are for you three kinds of inalienable rights: The right of birth—to do better than any aristocrat; the right of property—to do better than any plutocrat; the right of merit—to recognize the merit of others.

11. Democracy stands for the rights of the individual:

Socialism stands for the rights of the masses;

Is there no institution in Christendom which stands—as do the Jews, the Hindus and the Chinese—for the rights of the family?

12. That sort of government—from mussolinism up to democracy and down to bolshevism—is the best sort of government which best provides for education: Providing best for education it provides for the best government.

FOREST FIRES AND EROSIONS

(Continued from Page 18)

of merchantable character. With the soil in its present denuded condition there will doubtless be further damage whenever heavy rains occur and with the heavy spring run-off of melting snows.

The special conditions which contributed to heavy erosion in this case appear to have been:

1. A "double burn," i. e., two severe fires occurring at a relatively short interval of time—14 years.
2. A precipitous terrain wholly denuded of vegetation.
3. The presence of a large quantity of ashes, charcoal and light surface soil in a dust-dry and non-absorptive condition.
4. The occurrence of a torrential rain following a drouth.

LA LONGUE TRAVERSE

BY JIM SUTTON.

Vacationists take vacation trips, sometimes. Perhaps this is already known. And people vary. We are shooting better, now. Job Smith does not always choose a wife like Jeremiah Brown's. Which is just the point.

Anyhow we see how it goes. When time for the vacation comes, folks living in small cities are sure that the only place to take their rest is in a large city—where they may be warm enough and have enough of their own kind about them, at least; other local citizens are off to the desolate seashore because, we surmise, they own a swimming suit, Mandy Everybody goes there and the unsightly beach offers unique opportunities for sight-seeing when the water is fine; while—if school-day stories are credible—Richard, the Lion Hearted, feeling the call of the out-of-doors, was wont to indulge his great liking for congenial associates and prolonged hikes and head his picnickers toward the Jerusalem country to get religion.

It will just as well, possibly, to turn out and let all of these pass. Their gait is not quite the same as ours. Moreover, we exclude graduate speedsters—the daring fellows who flippantly throw the railway company's time-table, a gallon of gasoline and a given amount of unfinished business into a hat, reach in and draw out—well, a seven, we'll say; Which means that they can stay away from work only seven days; and they rush through the mechanics of the outing with such intensity that they are obliged to get back to work as soon as possible for a rest.

On the other hand, this dissertation—it is not On the Death of a Mad Dog, although it begins to look as if it might be—does deal with Someone. It deals with a very definite Someone—albeit, not a numerically important Someone. Perhaps it would have been more fair, after all, if we had made our subject read—For Someone, Not Numerous,—instead of making it apply so generally.

But we had better stop and take stock of our doings. It is about time we were getting on with our story, or the kind editor will begin to count the lines—and rumor warns us that the roar of a kind editor will drive the fierce Numidian lion to heavy silence. Don't worry though. What do we care about editors!

Well, it looks as if the secret were about to be disclosed, doesn't it? The plot, the climax, the reason for this dissertation and everything—all to be revealed soon. Down go the bars, then.

Still—and we pause to explain. The kind editor again! Because of his fearful ability to roar, our preliminary skirmishing is apt to be top-heavy—a great deal more bulky than our text.

As a matter of fact, not only is it apt to be more bulky, but it is more bulky. This, of course, is contrary to Literary Rule No. 1 and can not be tolerated. All right! We'll tear her up and start again, then.

Announcement! We arrive. Our subject is just ahead, at last. From this point on, the good old frontal attack will be used. Firing will be at point-blank range. Old style football will be played and no flanking movements will be allowed. And so forth and so on.

Once upon a time, a few paragraphs back in this story, vacationists were mentioned. Also, vacationists of the less numerous type were held up for your attention. Something was said, too, about a dissertation—a made-to-measure dissertation for Someone. Good enough. We might as well admit, then, that we had intended to tell how the fellow who lives near the mountains and has time might use some of his time; how, with a friend, a saddle horse and pack horse, he might take the trail, leisurely going where he pleased, staying an extra day in this or that camp if it is particularly satisfying, moving on to the next stream miles away for a different kind of fishing,—but we have just now changed our mind. Why bunch so many words together? We are neither raking hay nor shooting ducks. You know already all about the kind of vacation trip we had intended to describe, but around which oolite of discussion our thoughts have refused to deposit themselves correctly—when to go, where to go, how to go. Quite likely you wouldn't go, anyway, if told how, where and when to go.

One final pause—the writer's privilege, of course—and then over to tie the score.

You have now made up your mind that this is nothing but bunk—sheer, stern bunk of the pale-blue variety. You won't go. You want to be obstinate. You are obstinate. If—what a handy little word 'if' is—if you intend to leave the shield rusting on the wall, if you won't fill up the ranks of the Legion when Caesar sings out, "Fall in, there," you have not yet lost your right to wear the armor. You may still stay at home and hoe the garden.

Maybe, after all, that is the best way to spend a vacation.



IF WINTER COMES

A FOREST HYMN

The groves were God's first temples. Ere man learned
To hew the shaft, and lay the architrave
And spread the roof above them—ere he framed
The lofty vault, to gather and roll back
The sound of anthems, in the darkling wood
Amid the cool and silence, he knelt down
And offered to the Mightiest solemn thanks
And supplication.

BRYANT.

THE CHARMED LAND

OTIS T. HOWD.

Old Hewey took, so I've ben tought,
Six days to make the world;
He built the sky, and rearing high,
The mighty mountains hurled.
One only spot he finished not,
And then his tents he furled.

But e're on high, above the sky,
He went up out of sigh,
With final shout he called about
His workers all of might,
And thus he spoke, e're like a cloak,
He cloathed himself with night.

"Good helpers all, both great and small,
This is my last command,
This place you see must finished be,
That all may understand
I hold it blest 'bove all the rest,
The final promised land."

Old Puget then lined up his men,
He asked each one to work.
Three mighty men stood by him them
And labored like a Turk,
While all the rest refused to test,
And did their best to shirk.

Paul Bunyan drew his fingers through
His long and tangled locks,
He hadly spoke, but took the yoke
And sought his old blue ox.
He said "Watch me, I'll build a sea,
You two may use the rocks."

With cunning stroke the soil he broke,
He flung the dirt aside.
The rocks he tore with mighty roar,
And flung them far and wide.
He piled the earth till hills had birth
And grew on either side.

The old blue ox he hitched to rocks
And tore the big ones out.
He rolled them out and all about
An called each one a Mount,
And lest I lie, against the sky,
They witness if you doubt.

At reach and bay he dug away,
He shaped a thousand isles,
By headlands steep dug channels deep,
Where rippling waters smiles,
With generous hand he took the sand
And built the beach for miles.

Like golden gleam of painter's dream
He built old Puget Sound,
Where skies of blue the waters woo
A thousand isles around;
With emerald sheen they're always green
And always spring abounds.

Then old Cascade took up his spade
And reared against the sky
A row of peaks whose summit seeks
A marriage with the sky;
A super land whose wonders grand
Enchant the human eye.

Olympus then laid down his pen
And built with cunning hand
A place so rare that e'en the air
Seems wilder and more grand,
Of hill and stream beyond our dream,
A greater Switzerland.

And thus these three, as you may see,
Beneath the western skies,
Have built a land that's super grand,
And earthly paradise;
When God looked down, they say it found
Great favor in His eyes.

THE EDITOR'S PAGE

*They say best men are molded out of faults;
And, for the most, become much more the better
For being a little bad.*

Shakespeare.

Let me take this opportunity to express my appreciation for the loyal support and cooperation given to me by all of those who have contributed their time, labor and assistance in preparing this book.

The Editor.

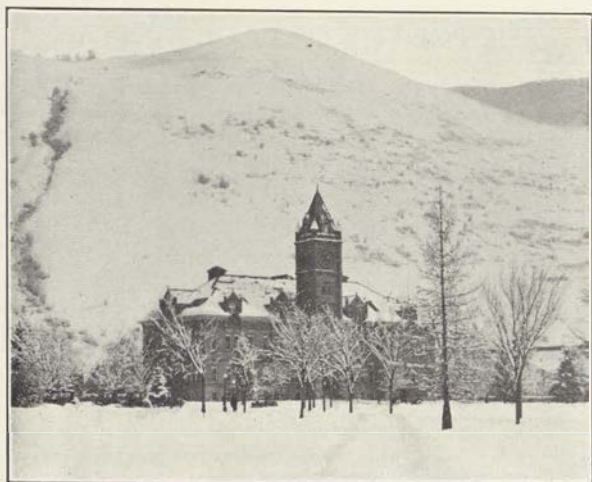
There is a blast of a whistle, a crash as the gangplank falls to the dock, a churning of water and ships sail out to sea. Some of these ships visit various ports throughout the world, others having left their last farewell are heard of no more.—And the world moves on.

Two friends stood at the fork of the road, each bearing his own burden; they clasped hands and bade each other farewell. Then each turned to his own direction and departed. That was twenty years ago. Neither has heard of the other since, but the world moves on.

The School of Forestry is about to say farewell to the members of its senior class. They are the ships, starting out to sea; we are the friends at the fork of the road; the trails over which they must trod have not as yet been swamped; there are stretches of easy going but for the most part the going is rough and each man must clear his own way. Like the ships some of these seniors will visit many ports while others will seldom be heard of again. May they leave with the feeling that they are leaving behind old friends and old traditions and with the knowledge that we, the student body of the Forestry School, extend to them our best wishes for success and happiness along the trail, in whatever direction it may go. We hope that they will bear in mind that:

There are ways, a way and a way,
And the high soul takes the high way,
And the low soul takes the low
And in between on misty flats,
The rest drift to and fro.
But to everyone there openeth
A high way and a low,
And everyone decideth
Which way his soul shall go.

—Exchange.



UNIVERSITY HALL

School Notes
and
Editorial Comment



THE POETRY OF PAUL BUNYAN

Twilight fades from the sky; the campfire is lighted; the crackling boughs of cedar and pine send a shower of a million golden sparks up into the darkness of the night. The scented wood smoke mingles with the smoke from our pipes and we prepare to listen to another of John's, Harry's, or Jim's stories of that famous mythological monarch of the woods, PAUL BUNYAN.

In this issue we are greatly indebted to Mr. Otis T. Howd, who has taken these interesting stories of BUNYAN and put them in poetic form. These poems he has very generously given to us for publication. We hope that all who read them will appreciate the work of Mr. Howd and find pleasure and delight in their reading.



TRAPPED

THE FIRE LOOKOUT

For stayin' on guard lest by night or by day,
Flames ravage the fir trees and pine.
Do you think I would watch here for mere money pay?
The friendship of forests is mine!

And so I'm a-sittin' alone on a peak,
The soft wind of June loafin' by—
The trees are my friends down on Clearwater Creek,
And it isn't far up to the sky.

(Taken from "The Fire Lookout on Baldy")

S. OMAR BARKER.



Photo by Dorian.

THE FORESTRY CLUB

BY CLARENCE AVERILL.

The Forestry Club membership consists of the students and faculty of the Forest School. These members meet the first and third Wednesday evenings of each month to carry on discussion and to promote better fellowship in the school. The meetings consist of the club's business followed by talks and refreshments.

The club was very fortunate this year in having several prominent foresters present at several meetings. Dr. Schenck was one of the faculty during the winter quarter and gave several interesting talks at different meetings. Mr. Wood, forester for the Long Bell Lumber Company, and Mr. Segison, forester of the Potlatch Lumber Company, gave interesting talks on the possibility of perpetual logging. Several forest service men gave interesting talks on different phases of forestry. These meetings proved very successful from the beneficial and interest standpoints.

During the fall and winter quarters the club held two joint meetings, one with the Press Club and the other with the girls of Craig Hall. Mr. Cornwall, editor of the *Timberman*, was the speaker at the meeting with the Press Club. Dancing and refreshments followed his talk. Moving pictures, dancing and refreshments were on the program for the joint meeting with Craig Hall. These meetings were held with the purpose of becoming better acquainted with other groups on the campus. They both proved very successful.

There are several events which the club puts on during the year. The annual hike is held the first part of the year. The

(Continued on Page 57)



Photo by Dorian.

DRUIDS

BY H. VAN WINKLE.

Montana Druids (Worshippers of the Woods) is a fitting name for the forestry honorary fraternity.

Dean T. C. Spaulding, Druid historian, says: "Like most good ideas or movements, their inception came in nebulous form and independently to several seniors and juniors. There was a hazy idea extending as far back as 1920 that we should have some kind of an honor fraternity, entirely our own, with ethics, with standards, with principles and precepts, not dictated by the exigencies in other schools, but by our own needs and the circumstances surrounding our own university.

"From 1920 to 1923 the form of such an organization more or less crystallized in the hearts of our student body; the first definite step towards the concrete presentation of the ideas was accomplished in 1923 and 1924 by a volunteer movement among the seniors. This resulted in the preparation of the six objects of Druid, from the objects the code of ethics and from both evolved the constitution and by-laws together with the ritual and working machinery. A formal ritual was established in 1924 and 1925, which was incomplete and lacking the beauty and solemnity characteristic of Roy Canfield's revision in 1925 and 1926."

Druids have 19 charter members, now the organization has many alumni, five honorary and 21 active members.

During this year, 1926 and 1927, each meeting of the Druids has been followed by a discussion of some current phase of forestry, led by one of its members.

The Druids have a "sacred meeting ground" in the woods where their initiation takes place under the stars and the pines.



BIG LOU TRIES THREE FINGERS

THE THIRTEENTH ANNUAL FORESTER'S BALL

By MARIE NEELEY.

Less than one month had elapsed since Christmas time had been here and old St. Nickolaus had paid his annual visit to the good and the deserving. Yet things were again assuming that Yuletide spirit on the Montana campus.

"What could all this mean?" were the inquiring glances from several spectators as a truckload of evergreens encircled the oval on Saturday morning, January 15.

"Had dear old 'Rip' been sleeping again and passed up Christmas or were some 'early birds' making their preparations eleven months early?"

Well, it was neither, nor was there any cause for alarm or thoughts of insanity on the part of some of the students on the campus. It was merely some of the Foresters getting their preparations for the Best Ball of the school year calendar—well under way early. It is not amazing nor surprising to those who know the Foresters, their spirit, and their enthusiasm for this affair that they start making the arrangements one month ahead of time. So on this Saturday morning, January 15, the truckload of firs causing so much comment was only the first of a half-dozen or so cut from the Forest School's virgin forest. From then on the Foresters' slogan was, "On with the dance," as the never-ceasing preparations continued to progress. The mountain sides of Pattee



THIS GROUP FOUND THE "BAR" A POPULAR PLACE

Photo by Dorian.

canyon prophesied the arrival of this gala event, and it is certain that to a scrutinizing eye various sections of the hillsides were left in a somewhat barren, desolate condition as the hundreds of pines were packed off for the decorative purposes of the dance.

On February 4th the whole town of Missoula and the University of Montana knew something had hit it—not a cyclone—but the arrival of Paul Bunyan and with him the Foresters' Ball. Mr. Bunyan's huge white footprints led the way from the campus entrance over walks, up steps, and finally terminated at the Men's gymnasium, the usual place for the dance.

The Forest School students had been excused from all classes two days previous and the strenuous work took place. However, their efforts were not wasted.

One! Two! Three! Four! Five! Six! Seven! Eight! NINE! Nine bells and the gates to the virgin forest were opened, and big Lou Vierhus, assistant chief push and bum rusher, stood most conspicuously at the entrance admitting only those with the scarlet permits and those in appropriate dress. He must have been lenient though for *only* the 400 tickets were sold and 800 pairs of legs became entangled in the mob. Yamma yamma suits and other masquerade costumes were not admitted to the forest since Lou predicted the "bum's rush" for any person's appearing in such inappropriate garb. For several years it has been most unfitting to see such clown and other unsuitable costumes parading around at a Western party. Since the Lumberjack ball represents a true Western gathering the attics and treasure boxes were ransacked to procure some dress of '49.

On account of the vastness of the gymnasium, its capacity and the 900 present, it closely resembled a traffic jam on Broadway and 52nd street. Realizing that a traffic cop would have been but a hopeless pedestal whose orders would have floated into dimness by the powers of the four winds, a most clever device was arranged. The J. M. Lovsted company presented the Forest School with a "Toots-E" whistle. This was to have been used as the signal. When one sharp whistle penetrated the noisy drum of voices below it signified "Stop" and all remained motionless, breathing lightly; when "toot-toot" pierced the atmosphere, action might again be resumed in either the Charleston or Black Bottom, both old-time jigs of the Foresters—but the action must be kept in a steadily forward motion; lastly, when "toot-toot-toot" sank within the depths, action must be reversed and spurs and French heels were to be removed from the adjoining trouser cuff or ankle. It was a mighty good plan—but something always happens to good plans—this time Doc Schreiber's gym didn't contain enough steam and pressure to make the apparatus whistle. It wasn't so bad, though; after the dance the K. P. gang only counted six pairs of false teeth, four puddles of blood, and a wooden leg!

This Ball was no exception and lived up to the traditions, long ago established. The bar, popular as ever, always drew the crowds, panting from some "Turkey-in-the-Straw," "Chicken Scratch," or "Virginia Reel," for nothing more intoxicating than apple cider and root beer was served, yet it seemed to exhilarate everyone and increase the spirits.

No less popular in its attendance was the Ranger's Dream—fascinating with its dreaminess, darkness, with the tinkle of the little spring, and with that old moon wisely never-seeing, peering into the depths beyond. Here the couples strolled quite casually in and out, during the four pleasant hours of the evening, to either dream in the peacefulness of the paradise, or to rest their weary bones, or to . . .!!

From 10:30 until 1 the groups went to supper in the Forest School building. Even though the Foresters missed the capable assistance of the Shorthorns the food, consisting of ham and date sandwiches, coffee, pickles, mocha cakes and brick ice cream, was served in a most appetizing fashion. During the evening prizes were awarded as follows: \$8 to the best couple, \$4 to the second best couple, \$4 each to the most cleverly dressed man and woman.

Many guests and chaperons were invited by the Forest Club. The Guests of Honor were Chancellor and Mrs. M. A. Brannon, Dr. and Mrs. C. H. Clapp, Dean and Mrs. T. C. Spaulding, Governor and Mrs. E. E. Erickson, and Governor and Mrs. Gifford



SOME OF THE PRIZE WINNERS

Photo by Dorian.

Pinchot. Many Forest Service men and lumbermen chaperoned. They in their positions readily discarded their dignity and joined in the merrymaking.

Sheridans' 10-piece orchestra furnished the music during the evening. They, too, were most fittingly robed in western garments. So it was with a sigh of sadness that the last strains of "Home, Sweet Home," were played, the moon went down in the West, and the gates of the Virgin Forest were closed on the Thirteenth Annual Foresters' Ball. Thirteen wasn't unlucky this time but simply added another score to the successes of the Forest Club.

Those who were responsible to a greater degree for the success of the dance were: Homer Anderson Chief Push; Lou Vierhus, Assistant Chief Push; "Buck" Merrill, boughs; Gordon T. Cornell, Foresters' Bar; Nelson Fritz, programs and permits; Barks Adams, orchestra; Andy Krofchek and Lou Bossart, food; Lloyd Campbell and Albert Yochelson, decorations; Donald Shaw, finances; Kenneth Davis, creating of Ranger's Dream of Paradise.

THE FORESTRY CLUB

(Continued from Page 51)

Foresters' Ball, which is the biggest event, is given during the winter quarter. A dual meet with the Forest Service was held this year during the first part of the spring quarter. Colonel Greeley, forester of the United States, was present for this meet. Just before the meet he gave a talk to the club. The Kaimin is published during the spring quarter. Several small dances were given during the year. Towards the end of the year a barbecue is given in honor of the departing seniors.

THE FIRE FOOL

A fool there was and he flung a match,
Even as you and I,
Carelessly down on a sun-dried patch,
Giving no heed that a fire might catch
And spread to the timber with quick dispatch,
Even as you and I.

The fool passed on with wondering look,
Even as you and I,
He couldn't explain the fire that took
The forest away, and dried the brook,
And left the region a place forsook,
He was a fool—that's why.

A. G. JACKSON.



THE FOREST SCHOOL RIFLE TEAM

THE FOREST SCHOOL RIFLE CLUB

By E. F. ERNST.

Although a considerable percentage of prospective members have been lost due to the elimination of the Rangers Short Course, the Forest School Rifle Club has been successful in making up for part of this loss by enrolling a greater number of the regulars than has heretofore been the rule. In the future all our work will be confined necessarily to the regulars. The popularity of the Forest School Rifle Club is reflected in the requests of students from other departments of the University to join our club. We have been compelled to refuse their requests because of possible misunderstandings when matches with other clubs should be undertaken. When requests come from outsiders to join our club there must be some reason for it. We believe that the reason lies in the go-getting unity and fair-play that seems to permeate all the Forest School activities.

Soon after the opening of school in September the club got to work demonstrating to the new members the tricks that attend good shooting. Understanding that good shooting can only come from constant practice and right training it has been the policy in the past to begin with very simple but fundamental methods of good shooting. Some of the early results were funny but when the lessons were learned some real good shooting was obtained.

The Bradley Trophy, which was donated by Major George L. Smith for matches to be run off between the R. O. T. C. team and the Forest School Rifle Club, will be shot for some time in the spring quarter. Matches with the Women's Rifle Club and the Forest Service Rifle Team will also be run off. In so far as our match with the local R. O. T. C. unit is concerned it seems that we are bound to lose. The rules for the conduction of the match

automatically eliminates the best of our Sophomore and Freshmen marksmen. With the rules as they now stand it is very doubtful if we shall ever obtain a team that will be a match for the local R. O. T. C. unit. Application for a change in the rules allowing our Sophomore and Freshmen members decide which team they want to shoot for has been made, a change which we believe will be granted.

Our strongest season is the spring quarter when we get out in the open to shoot. The outdoor range is ideal for our .30-06 Springfields. Sore shoulders soon wear off and the initial nervousness also disappears. After these two handicaps are removed Mount Sentinel gets the impression that there are some more fool tenderfoot miners running galleries for gold. The Springfield practice limbers up the gang, getting them by the end of the quarter in good shape for cannonading the deer when the hunting season begins. This practice stands one in good stead when the hunting season opens and nearly every student in the Forestry School hies away to the hills "to get me a deer."

The Forest School Rifle Club hopes to procure some day in the near future the more modern rifles such as the Winchester .54's. With the aid of the local R. O. T. C. we have been able to prosper. We convey our appreciation to the officers of this unit for without their aid we would have been sorely handicapped.



THE CALL OF THE WILD

THE FIRST ANNUAL MEET BETWEEN THE LUMBER INDUSTRY-FOREST SERVICE-FOREST SCHOOL

BY FAY CLARK.

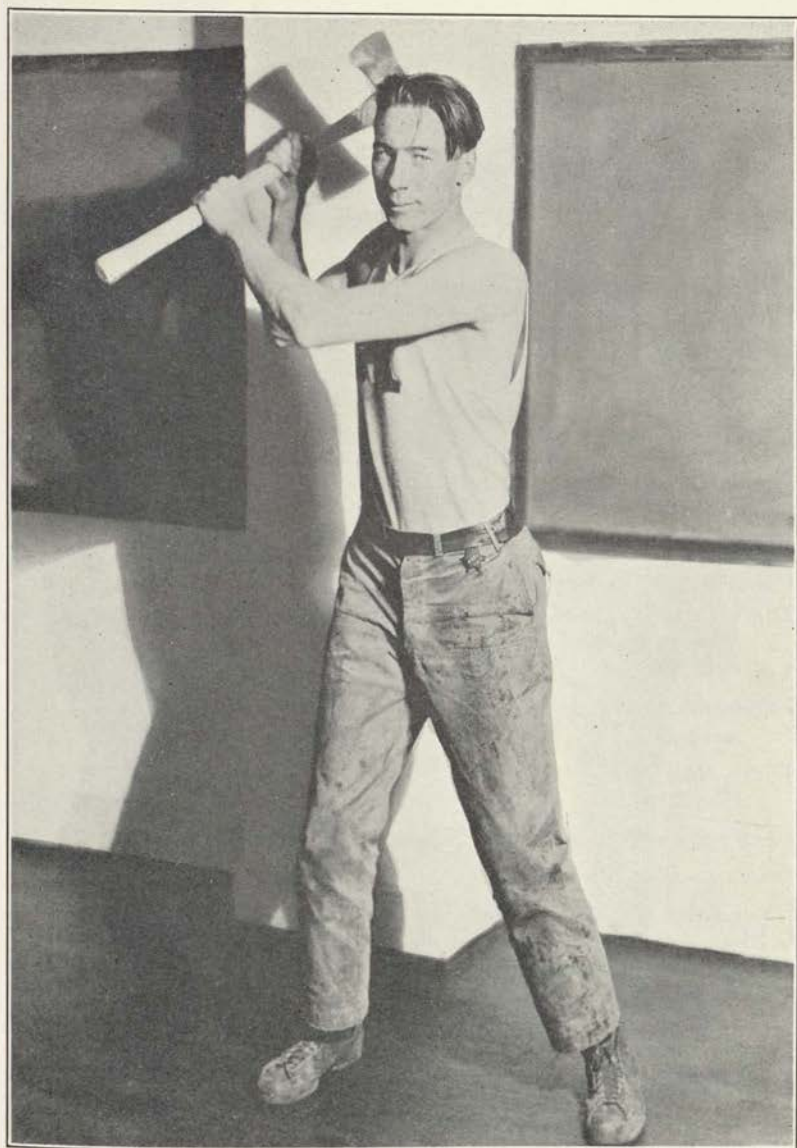
To take the place of the annual contest between the regular students and the "Shorthorns" for the past twelve years, it was decided that some kind of an entertainment would be provided. After considerable discussion with members of the Forest Service and the Lumber Industry it was decided that each would enter teams of various promise for the contest. As a result of this about 400 townspeople, members of the Lumber Industry, Forest Service and Forest School assembled in the Men's gymnasium, Wednesday evening, March 30.

To make matters interesting Dean Spaulding secured the donation of a pair of cruising boots from the Missoula Mercantile company, for the high individual point winner; a wool cruising shirt from the same company for the champion axeman; while Weston & Sterner donated a wool cruising shirt, and Yandt & Dragstedt an identical garment for the champion saw team.

The meet turned out to be a dual meet between the Forest School and the Forest Service, since for some unknown reason teams from the Lumber Industry failed to arrive. The Forest School won the meet easily from its heavier and more mature opponents with a score of 45 to 26. Many of the events were closely contested. The sawing and chopping contests were close, and the finish was a thrilling one amid sawdust and flying chips.

Colonel W. B. Greeley was an interested and enthusiastic visitor and acted as referee for the tug-of-war, in which the lighter, but more seasoned, team of the forest school yanked their heavier opponents the length of the gymnasium floor. District Forester R. H. Rutledge, of Ogden, Utah, acted as judge in the chopping and sawing contest, together with Ed. Polleys, of the Polleys Lumber company, and Howard Flint of the U. S. Forest Service. District Forester Fred Morrel and W. C. Lubrecht, general manager of the Lumber Department of the A. C. M. company, were the field judges.

After all the contests had been decided the visitors and contestants adjourned noisily to the Forest School, where "Bish" Bischoff and "Handy Andy" Krofchek had that odorous and savory dish concocted, well known to Foresters and other denizens of the deep woods as "Mulligan." They also had some good old-time coffee (guaranteed to float the spoon) along with sandwiches and other knick-knacks.



"LANKY" SPAULDING
"Champ" Axeman of the Forestry School

Photo by Dorian

The officials for the Meet were as follows:

Announcer	Dean Spaulding
Field Judges	Fred Morrel, W. C. Lubrecht
Timer	Dr. W. E. Schreiber
Starter	Harry Adams
Judges for races.....	Elers Koch, Meyer Wolff, C. D. Simpson
Judges for rope climbing.....	L. C. Stockdale, Bill Nagle, Harry Ade
Judges for chopping and sawing.....	R. H. Rutledge, Ed. Polleys, Howard Flint
Referee for wrestling.....	Dr. W. E. Schreiber
Referee for tug-of-war.....	Colonel W. B. Greeley
Judges for packing contests.....	G. I. Porter, Jack Clack, D. L. Beatty
Referee for tilting contest.....	E. A. Findel

The final results of the events were as follows:

Rope Climbing—Cornell, School of Forestry, first; Beeman, Forest Service, second; Lemmon, School of Forestry, third.

Tug-of-War—Won by the Forest School.

Wrestling—Won by Cornell, School of Forestry.

Packing—Won by the Forest Service.

Three-Legged Race—Davis and Flock, School of Forestry, first; Hamilton and Pierson, School of Forestry, second; Armstrong and Newman, Forest Service, third.

Tilting—Cramer, Forest Service, first; Davis, School of Forestry, second.

Three-Man Relay—Won by Davis, Nelson and Ernst, School of Forestry.

Chopping—Won by Lanky Spaulding, Forest School.

Sawing—Won by Spaulding and Mikalson, Forest School.

Lanky Spaulding won the cruiser shirt donated by Weston & Sterner and the stag coat donated by the Missoula Mercantile company. Aurther Mikalson won the cruiser shirt donated by Weston & Sterner; and Gordon Cornell won the logger's boots donated by the Missoula Mercantile company for the high individual point winner.

The tentative plans for the meet next year are to change it into a field day and hold it in the open, adding to the list of events birling, or log rolling, pole climbing, cross-haul loading, and axe throwing. It is planned to hold a barbecue after the events are over, for which invitations will be given to our visitors and those of the general public whom we wish to attend.



R. CHERRY

W. BELL

Photo by Dorian

"Champ" Packers of the Forest Service

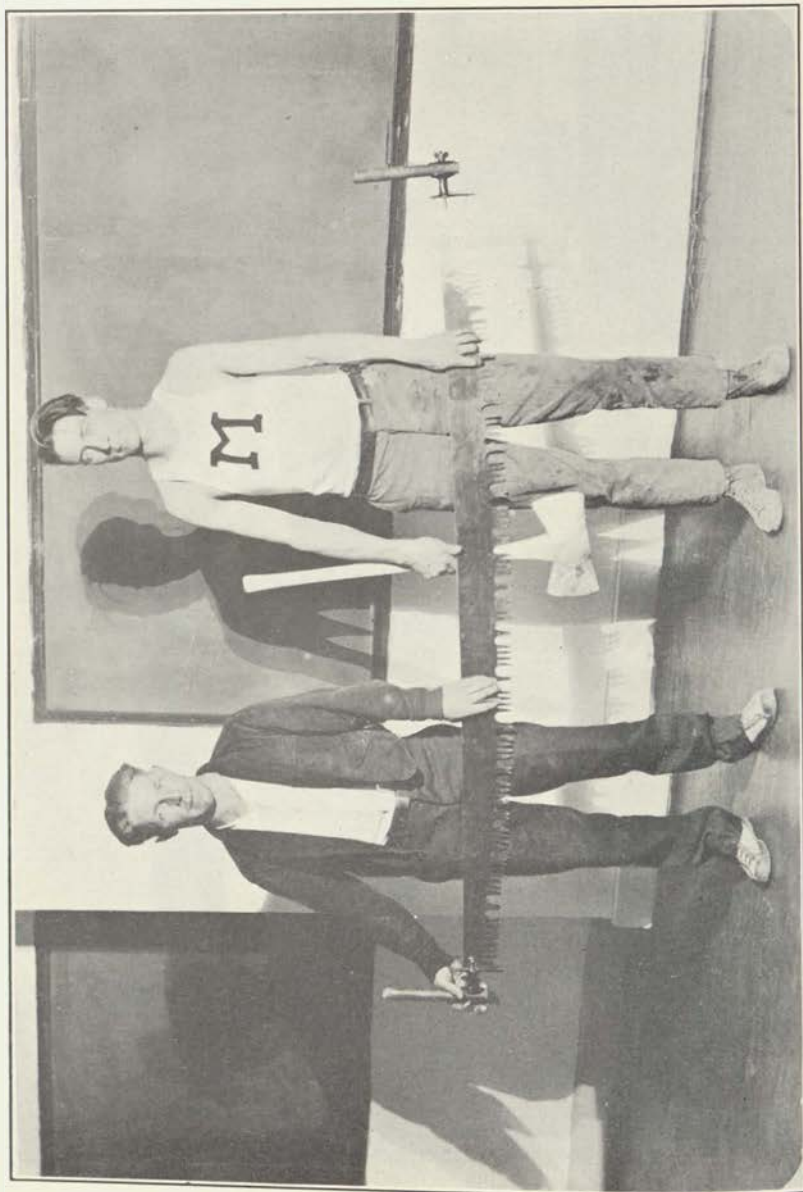


Photo by Dorian

MICKALSON SPAULDING
"Champ" Saw Crew of the Forestry School

THE FORESTER'S HIKE

BY LANKY SPAULDING.

The Forestry Club's annual moonlight hike was held early in October on the picnic grounds up Marshall gulch. The seventy-five couples who attended started from Missoula on the seven o'clock Bonner car and got off at Marshall grade and walked a mile to the campground.

A large pile of wood, which had been provided was set afire shortly after the arrival of the hikers.

Soon after all had time to look around and see who was there the entertainment started, which consisted of songs, selections and recitations by Colby and Staat. Miss Ruth Gannaway also gave several interesting and enjoyable recitations.

The refreshments, consisting of hot dogs, marshmallows, apples and coffee, were brought up by truck.

The hike was closed with the singing of "College Chums" and the party returned to Missoula at 12.

Professor and Mrs. I. W. Cook and Professor and Mrs. J. W. Severy chaperoned the hikers.

This was the first of the club's traditions to be put on and it was very successful.

C. W. Bloom had charge of the arrangements for the hike.



WHEN THE FIRE BURNS

THE SCHOOL OF FORESTRY IN ATHLETICS

By K. DAVIS.

The Forest School is taking an increasingly active part in school athletics, both in the major sports and in the intra-mural contests. There are at present five lettermen in the Forest School representing three major sports, football, basketball and track.

Football

Lester Tarbet, sophomore, and Lou Vierhus, junior, played with the Grizzlies last fall. Vierhus, the giant lineman, is captain-elect of the team and one of the bright spots in the Montana line.

Basketball

Louis Wendt is the only basketball letterman at present. He held down a regular berth at guard in his first year of varsity competition. He has two years yet to play. Several members of the freshman class are on the frosh squad and will bid for places on the varsity squad next year. Last year the Foresters' team won one game and lost two in the intra-mural tournament. This year, judging from the prospective material, a strong, well-balanced team will be entered, with good chances of winning. Adams, Campbell, Spencer, Fritz, Davis, Knapp, Brenner, Ebert, Chasse, Briscoe and others are out to win.

Track

Three juniors are track lettermen. Adams, Davis and Spaulding were members of last year's championship track team, and are preparing for another big season. Several other men are out for places on the team. Fritz is a likely candidate in the jumps. Curtiss, a freshman, shows promise of becoming a good distance man.

Baseball

The baseball team won second place, losing to the Journalists in the final game of last year's series. Lack of practice and inability to hit were the chief causes of defeat. Better luck this year

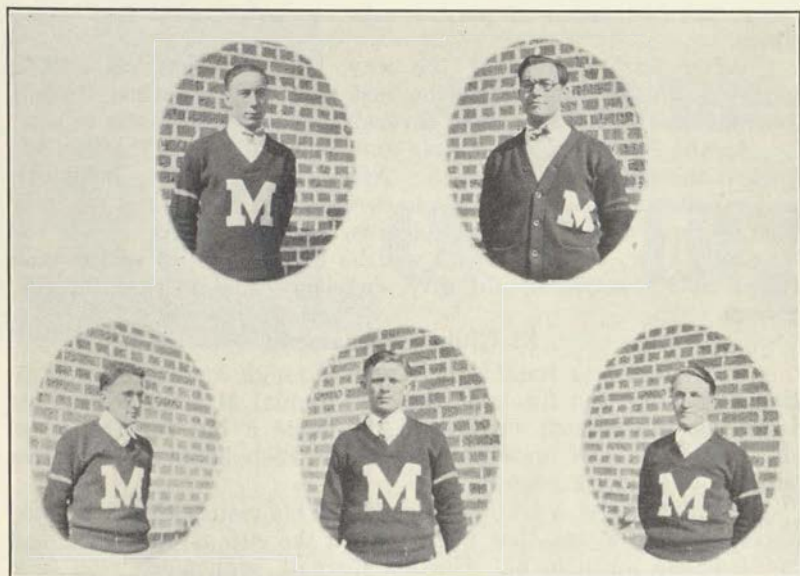
Intra-Mural Basketball.

In the intra-mural basketball tournament, the Foresters entered a potentially at least, strong team, but inability to play together and score when points were needed, lost them four out of five games by narrow margins.

Kenneth Davis, captain and high score man; Bill Brenner, Barks Adams, Lloyd Campbell, Aaron Knapp and Jack Briscoe bore the brunt of the playing, aided by Clarence Chasse, Elmer Luer, Hugh Ebert, Howard Dix and James Johnson.

The Lawyers proved to be the only victims to the Lumberjack attack when an early lead was piled up and held throughout the game despite strenuous arguments and pleas on the part of the Shysters, the game ending 20 to 13 for the Foresters.

OUR "M" MEN



SPAULDING
DAVIS

WENDT

VIERHUS
ADAMS

WINNERS IN THE "M" CLUB TOURNAMENT



"BATTLING" DAVIS

"STRANGLER" CORNELL

"K. O." CURTISS

The Business Ad team won a hotly contested battle by dropping in three baskets in the last few minutes to win 22 to 16. The game was fast and well played with the score being tied several times.

After leading most of the way, the Foresters lost another game to the Journalists in the last few minutes when Beckett, Journalist center, dropped in several accurate long tosses to win.

In the Pharmacist and Arts and Sciences games, the jinx still dogged the unlucky timbermen. After tying the score repeatedly and missing easy shots, both games were lost in the last few minutes by three and four-point margins.

Next year, the same team will be back and with added experience and practice should give somebody a close race for first honors.

M Club Tournament.

Five Foresters fought their way through a week of elimination bouts into the finals of the best annual M Club boxing and wrestling tournament on record, to make a bid for the school championships. Of these five, three won their bouts and the other two lost to fellow Foresters.

Frank Curtiss, a freshman, defeated his man with a fast, driving, two-fisted attack that won for him the cup given for the best event of the tournament. Gordon Cornell, sophomore, won from his classmate, Sture Carlson, in a well-matched wrestling match. Kenneth Davis, junior, won from Quentin Boerner in a stiff bout, Davis' left-handed clouts being the deciding factor.



"BIG LOU" VIERHUS
Football Captain, 1927



AROUND THE CAMP FIRE

ACCURACY

BY LANKY SPAULDING.

One evening not so long ago, as I sat in a friendly game with a couple of scalers, the logging engineer and the straw-boss, the conversation drifted around to cruising. It developed, to me, that all the men had cruised for several seasons for one of the lumber companies in Western Montana. After talking pro and con of the different methods of determining the stand on a "40," they started on accuracy of pacing. The engineer looked at me and asked, "You chased smoke with Les Colville on the Blackfoot one time, didn't you?"

"Yes."

"And went to the same school?"

"Some."

"Well, Les used to be my compass man, and a good one, too. We were cruising in surveyed country that had been partially logged thirty years ago, and the survey was made before the logging. No iron posts like you have today, and as the surveying was done on contract, the corners were marked with anything handy.

"Well, one day we started out where we had quit the day before, offset and run through the section twice and except for tiering in were done for the day. Les paced out a tally, jabbed his jake stick into the ground, looked down, and if it wasn't in the center of an old grindstone head. He started to look around for the bearing trees and the rock that represented the corner. By the time I came up he was some little distance off, traveling in a circle looking for that corner. He came back to the jake stick and grindstone and we both looked. He noticed a scar on a stump to the northwest. With my hand axe he cut the callus off and there, plain as anything, was Sec. 23 B. T. In a short time we

found two more B. T.'s, Sec. 24 to the N. E., and Sec. 26 to the S. W. With three bearing trees we looked around for the corner. The only stone we could see was the grindstone. Les went over to examine it and, sure enough, it had two parallel lines facing the north and two facing east, which determined it to be the S. W. corner of Sec. 23, two miles north and two west of the township corner. This location was the same as on the bearing trees.

"And, I'll be darned if Les hadn't stuck his Jake stick in the middle of the section corner without realizing it for half an hour. If anybody can beat that for accuracy of pacing, I never heard of it.

"Well, good night, boys. Got plenty of work to do tomorrow."

THE FOREST FIRE FIGHTERS

The wind sweeps off the spire-like peak,
And is whirling the cinders high;
While down in the stifling, deadly reek,
We struggle, and all but die.

We have felled the trees in the fire's path,
Till our hands are bleeding and sore;
But always it spreads, with a hiss of wrath,
And leaps the barrier o'er.

We have fought it back, with blaze 'gainst blaze,
And yet has the foe slipped past;
But slowly we yield, in the choking haze,
Till the victory's won at last.

Small pay do we get, and thanks are gruff,
When we've fought the foe to his knees;
But after all, the reward's enough
When we hear the wind in the trees.

ARTHUR CHAPMAN.

A PRICKLY EXPERIENCE

By A. Y.

It was in New Mexico. We were gathered around the camp-fire, tired from the day's work of rounding up horses on the range. Cigarettes were being rolled and smoked; pipes were being puffed leisurely; faces were turned to the fire, and eyes were gazing into the burning embers. Each man's thoughts were turned to incidents in his past. It was story-telling time, and stories were benignly told in easy, natural English. It came my turn, so I began:

"It was in the spring of 1916. A case of lobar pneumonia and pleurisy had left me with two weak lungs. The doctor said that the Southwest was the only place where they would grow strong again; so west I came.

"The west was as strange and new to me then, as China would be now. And if there was anything that I was sensitive about, it was being dubbed a 'green easterner from New York.'

"How old Bill Elson ever happened to hire me to work on his ranch, I can't tell you. Bill was a self-made man, born in the saddle and somewhat slow to appreciate what colleges call culture. For days at a time he would not speak to anybody, and when he did open his mouth he spoke with his chin on his Adam's apple and in a voice that sounded like rumbling thunder.

"Perhaps Bill thought I had possibilities, or he may have felt sorry for me. Anyway, he hired me and I found myself on an Arizona ranch, miles from a neighbor.

"I guess you fellows who grew up on ranches can't appreciate how those long-horned Mexican cattle appeared to me. I couldn't look one in the horns without speculating on how'd be the best way to escape if he didn't like my looking.

"But the worst I felt was when an old, broken-down saddle horse was brought out for me to ride. Not that he was an insult to my riding ability, no, not at all. But in the face of my hurt dignity, I made up my mind that I'd show them whether even a tenderfoot couldn't learn to ride with the best of them.

"There was one horse on the ranch the boys called Villa. Villa was the type of horse that was gentle and agreeable when you went out in the corral with only a halter in your hand. But he revolted each time he was saddled. He was a hard buckner, coming down with all four feet stiffened and in a space about as big as your hat.

"I made up my mind one Sunday afternoon when I was watching the others riding him. Only it wasn't going to be on a Sunday afternoon when the others were watching.

"The ranch to all appearances was deserted that day. I had been left behind to attend to some 'chores,' because I couldn't ride as well as the rest of them. I walked to the corral. There was Villa.

"I got the bridle on him and then the saddle. Into the saddle I got, and out of the corral I rode. Results weren't very long in coming. Villa's head went down, his back bowed, his hind heels came up and I—flew off.

"I thought at first that I had landed in a pin-cushion with its bottom side up. It was a cactus patch, I later observed, and just as bad.

"Somebody was sitting on the fence. Old Bill Elson called in his rumbling voice, 'All right, young fellow. I knew I wasn't wrong when I picked you out.' "

WHITE BIRD

White bird in a birch tree
Trilling no tune;
No leaves on the birch tree,
Even in June.

White bird is like a stone,
Moving no feather;
Birch has white arms of stone
In the still weather.

Never again there'll be
Low warbled word,
Sung from a green birch tree
By the white bird.

ERNEST ERKKILA.

O'DELL

By A. Y.

Probably if the Chief Forester were asked about O'Dell, he would scratch his head and answer: "O'Dell, must be an Irishman, but I'm sure that I don't know him."

No, O'Dell is not an Irishman, but a lookout station on one of the National Forests. It is one of the cogs in the vast mechanism of the fire protection system of the United States Forest Service.

It may be reached only during four months of the year, due to the deep snows which make it inaccessible during the remainder. Even during those four months, one earns the privilege of seeing it.

The trail up to the base of the mountain, on which O'Dell Lookout is built, is extremely narrow. It is an old Indian trail which has been improved by the Service. One must often leave it and pick another route because of fallen timber. It leads over ledges, around and over mountains, and underneath overhanging boughs that slap one in the face for disturbing them.

We reach the foot of the mountain, on which O'Dell is located. One probably thinks what a good traveler he is and that the journey is nearly over. Tantalus also thought that getting a drink was a comparatively simple matter. But as the water receded from his lips, so the idea of the ease and shortness of the remainder of the journey up to O'Dell recedes from the mind of the amateur traveler.

If one could only go straight up the mountain as a fly crawls up a wall, the ascent would be simplified. But that is not possible. It is only by winding to the left and right many, many times that we reach the lookout station. True, the horses do the climbing and we ride on their backs, but the feeling which comes from looking down, down, is not comfortable to the dizzy-headed.

O'Dell Lookout appears as a small, square house built on a bald mountain top. "But," my eastern friend asks me, "there is so much wind up here, what keeps the house from blowing away? I see those wires. Do they help?" They do. The cables from the house are tied to large stones, and these are buried among the rocks on the mountain top. "But lightning is bad," he persists. Yes, there is lightning and it is bad. There are less dangerous places than a lookout station during an electrical storm.

People who live in glass houses should ordinarily not throw stones. There is a great deal of glass on the four sides of O'Dell Lookout, and one may throw all the stones he wishes to. There is no one up here to throw back. The large glass windows on the four sides make it possible to view all the visible country.

We undo the diamond hitch. The horses heave a sigh of relief as we unload the supplies for the lookout man. O'Dell is built on a high foundation and steps lead up to the entrance. The furnishing is simple—a cot, table, chair, small stove, a few dishes and the equipment for fire detection. There are numerous diaries on the walls, written by former lookout men. There are magazines—some ten years old. There are bits of poetry written in them—and fly specks. For O'Dell has plenty of flies.

The lookout man in O'Dell Station watches for suspicious smoke through all the four glass sides. High, high above the rest of the world, the forested mountains stretch out. These vast areas of timber are potential homes, sawmills, water shed protection and habitats of wild life. On immediate notice of smoke, the lookout man notifies me, or other forest officers, by telephone. His watch extends over the day and often at night.

O'Dell has seen many lookout men. It has welcomed in the "lunger," the college boy and the prospector, alike. It has tested men. It exacts faithful watching and, in return, gives peace, quiet, beauty, health and material wage.

O'Dell—not an Irishman—a tiny house on the top of the world—a small lookout station giving a mighty service.



BAND LANDS—WHAT CHANCE HAS A FORESTER HERE?

OUR PROFESSORS AS THE STUDENTS SEE THEM



BUILDING COLUMBIA GORGE.

OTIS T. HOWD.

When Mount Rainier was a hole in the ground,
'Ere Midas made his stake,
The land to the west of the Rockies
Was all a mighty lake.

And there of a summer's evening
Paul Bunyan came to fish,
For a mess of steelhead salmon
Was ever his favorite dish

With a rod that was only eight leagues long
And keen and strong and light,
And a wondrous fly he'd made himself
He lured the fish to bite.

This day he'd landed some small ones,
Less than a league in length,
But at last he hooked a beauty
That tested the big boy's strength.

It was fight from the time he hooked it.
Oh, boy, but this was bliss,
Who would fool with a pyramid
When he could live like this?

The light line sang through the ferules
And the water foamed like beer;
The big fish raged to seaward
But ever he drew it near.

'Twas back and forth till the sunset
An the stars came out anon,
The fish was giving inch by inch,
But ever the fight went on.

'Twas a fight that once in a lifetime
Comes to a fisherman,
And having felt the thrill of its power
He's wed to the fishing clan.

Morning found Paul Bunyan
Ready to grasp the prize,
But the fish, in growing larger,
Had, too, grown wondrous wise.

And dashing towards the nimrod
It tried to foul the line
Around some broken branches
Of a water-logged old pine.

It was nip and tuck for a moment
But Bunyan was forced to see
The strong line part like a raveling
And the fish to tearing free.

With one quick burst of anger
He sat down limp as a rag,
And when he wended homeward
His feet would scarcely drag.

But rest brought resolution
And an evergrowing wish;
He'd camp there by that lakeside
Till he caught that cussed fish.

For weeks he fished those waters
In sunshine and in shade;
A thousand different spots he tried,
A hundred lures he made.

But often as the sunset
His dream fish would arise
And sport its lazy beauty
Before his longing eyes.

And ever it seemed to laugh at him,
And ever he madder grew,
He cussed and fought it in his sleep
Till he knew not what to do.

But at last said Paul Bunyan,
There's one way left to try.
I'll have that fish by sunset
Or know the reason why.

"I'll drain this cussed puddle
Right through the old Cascades
And grill that fish for supper
On the hottest plate in Hades."

The old bue ox he harnessed,
He didn't give a dern,
As around old Mount Baker
He took a double turn.

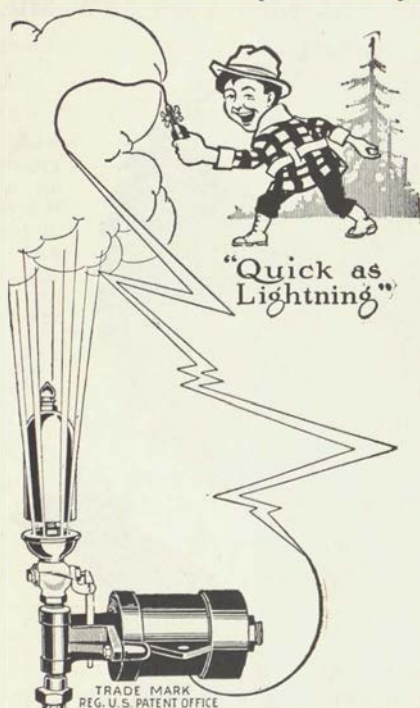
He almost pulled the mountain loose,
But he pulled the range in, too,
And all those inland waters
Like mad came tumbling through.

(Continued on Page 101)

THE SENIOR CLASS

- CHARLES BLOOM - - - - - Cook, Minnesota
 Sigma Alpha Epsilon
 Forestry Club
 Druids
 Phi Sigma
 Associate Editor Forestry Kaimin 1
 Business Manager Forestry Kaimin 4
- PAUL BISCHOFF - - - - - Missoula, Montana
 Forestry Club
 Druids
 Spent ten years with the Mengel Lumber Company, Nicaragua, but returned this year for his B. S.
- JOSE LOGAN - - - - - P. I.
 Phillipine Islands
 Forestry Club
- EVERETT RICHARDS - - - - - Stevensville, Montana
 A steady, reliable worker who finishes what he starts
 Forestry Club
- CHARLES KUMLER - - - - - Lewisburg, Ohio
 Sigma Alpha Epsilon
 Forestry Club
 Druids Treasurer 4
- ALBAN ROEMER - - - - - Appleton, Wisconsin
 Forestry Club Executive Board 3
 Forestry Club Treasurer
 Druids Vice President 4
 Phi Sigma Treasurer 3
 Phi Sigma President 4
- DONALD SHAW - - - - - Livingston, Montana
 Forestry Club Secretary 3
 Druids Secretary 4
 Phi Sigma Treasurer 4
- MATTISON SPENCER - - - - - Chicago, Illinois
 Forestry Club
- R. "ED" TENNANT - - - - - Missoula, Montana
 Forestry Club
 Forestry Rifle Club
 Druids
- H. H. "RIP" VAN WINKLE - - - - - Missoula, Montana
 Forestry Club Vice President 4
 Forestry Rifle Club
 Druids President 4
 Phi Sigma
 Press Club
- CARTER RUEBOTTOM - - - - - Lincoln, Montana
 Forestry Club
 Druids

100% Performance for Every Day!



"Quick as
Lightning"

"TOOTS-E"

The Logger's Electrically-
Operated Steam Whistle

TOOTS-E is always on the job—
adding a car of logs a day.

No country too rough—no distance too great—for TOOTS-E. The whistle punk can run cable under track—over hills—through brush—anywhere—any place. Just press the signal handle and TOOTS-E toots. No falling trees or branches can put TOOTS-E out of commission.

Write for our Catalogue Insert No. 44.
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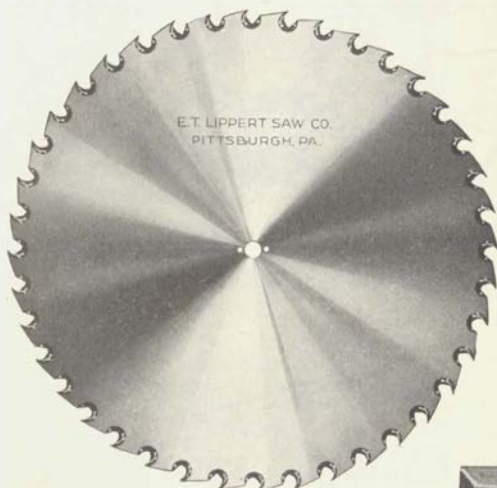
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1912

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1914

Whitaker, Jocelyn A., B.S. Forestry.....
.....1462 38th Avenue, Seattle, Wash.

1915

Ade, Harry, B.S. Forestry.....U. S. F. S., Missoula, Mont.
Whisler, Fred H., B.S. Forestry Engineering.....
.....Room No. 4, Higgins Block, Missoula, Mont.

1916

Lansing, Harold, B.S. Forestry.....Deceased, May 19, 1923

1917

Brooks, James F., B. S. Forestry.....St. Maries, Idaho
Kent, Hugh, B.S. Forestry.....177 5th Street, Dundee, Ill.
Richardson, William, B.S. Forestry.....Sheboygan Falls, Wis.
Simpkins, Edward, B.S. Forestry.....
.....Mengle Company, Bluefields, Nicaragua

1918

White, Wellington I., B.S. Forestry.....Box 39, Kalispell, Mont.

1919

Hayes, Henry, B.S. Forestry.....Farming, Potomac, Mont.

1920

Butler, Everett, B.S. Forestry.....Box 186, Alton, Ill.
Dacany, Placido, B.S. Forestry.....Los Banos College, Laguna, P. I.
Ireland, Russell, B.S. Forestry.....Libby, Montana
Kohner, William G., M.S. Forestry.....
.....2613 N. Broadway, Los Angeles, Cal.
Whisler, Harold, B.S. Forestry.....
.....741 Woodford Ave., Missoula, Mont.

1921

Baker, Clyde P., B.S. Forestry.....Coeur d'Alene, Ida.
De Jarnette, Geo. M., B.S. Forestry.....
.....Timber Sales Chief, U. S. F. S., Sandpoint, Ida.
Dirmeyer, Earl, B.S. Forestry.....Real Estate, Detroit, Mich.
Franco, Felix, B.S. Forestry.....Bureau of Forestry, Manila, P. I.
Hendron, Harold, B.S. Forestry.....
.....416 W. Front St., Livingston, Mont.
Radtke, Leonard B., B.S. Forestry.....
.....307 Huntington Court, Madison, Wis.

ALUMNI

- Williams, R. A., B.S. Forestry.....
17 Compton St., New Haven, Conn.
 Wolfe, Kenneth, B.S. Forestry.....
Supervisor, Cabinet Forest, Thompson Falls, Mont.
 Zeh, William, B.S. Forestry.....
Supervisor, Klamath Agency, Klamath Falls, Ore.

1922

- Best, Ed. H., B.S. Forestry.....Smith River, Cal.
 Dexter, Albert K., B.S. Forestry.....
Alabama Lumber Co., Sylacauga, Ala.
 Hutchinson, Frank E., B.S. Forestry.....
State Forest Service, Wellington, New Zealand
 Shull, J. T., B.S. Forestry.....
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 Valderrama, Felipe, B.S. Forestry.....
Cottage No. 2, Constabulary Hill, Baguio, P. I.
 Warner, Neil G., B.S. Forestry.....
3426 Columbia Circle, Spokane, Wash.

1923

- Allan, W. S., Jr., B.S. Forestry.....1218 Inns Court, Louisville, Ky.
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 Dally, George I., B.S. Forestry.....Stockton, Ill.
 Fry, W. E., B.S. Forestry.....Ranger, U. S. F. S., Augusta, Mont.
 Hoyt, Harrison H., B.S. Forestry.....
U. S. Biological Survey, Dixon, Mont.
 Lambert, Lahman, B.S. Forestry.....
Ritter Lumber Co., Woodland, Ky.
 McDonald, Chas. H., B.S. Forestry.....Kamas, Utah
 Madsen, Edward, B.S. Forestry.....
Santa Barbara Nat. For., Santa Barbara, Cal.
 Olson, A. C., B.S. Forestry.....
Shasta Division, Southern Pacific R. R., Dunsmuir, Cal.
 Sandvig, Earl D., B.S. Forestry.....U. S. F. S., Missoula, Mont.
 Slatting, Hugh, B.S. Forestry.....U. S. F. S., Payson, Ariz.

1924

- Broderick, R. E., B.S. Forestry.....
Bureau of Public Roads, Portland, Ore.
 Colville, Leslie, B.S. Forestry.....U. S. F. S., Bend, Ore.
 Crowell, Ralph, B.S. Forestry.....
Ranger, U. S. F. S., Superior, Mont.
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Nickolaus, Charles, B.S. Forestry.....	Ritter Lumber Co., Woodland, Ky.
Nickolaus, Howard, B.S. Forestry.....	Pomerania, N. J.
Painter, Wayne, B.S. Forestry.....	Bureau of Plant Industry, Spokane, Wash.
Riley, Marvin C., B.S. Forestry.....	Forest Assistant, U. S. F. S., Libby, Mont.
Williamson, F. E., B.S. Forestry.....	Ranger, U. S. F. S., P. R., Rhodendron, Cal.
Zamansky, Allan, B.S. Forestry.....	Yale University

1925

Bitney, Howard, B.S. Forestry.....	
Brown, Linnel, W. B., B.S. Forestry.....	County Surveyor, Superior, Mont.
Cramer, John A., B.S. Forestry.....	Jr. R. Examiner, U. S. F. S., 432 Ford St., Missoula, Mont.
Daprosa, Juan, M.S. Forestry.....	Bureau of Forestry, Manila, P. I.
Fields, Ralph E., B.S. Forestry.....	Forest Assistant, U. S. F. S., Missoula, Mont.
Hicks, Harold W., B.S. Forestry.....	210 Holly Ave., Washington, D. C.
Lee, Bernard, B.S. Forestry.....	Ranger, U. S. F. S., Missoula, Mont.
Rowland, Thomas, B.S. Forestry.....	Forest Assistant, U. S. F. S., Missoula, Mont.
Myers, R. E., B.S. Forestry.....	Bureau of Plant Industry, Spokane, Wash.
Baggs, John T.	Potlatch Lumber Co., Oregon
Beall, Carl F.	Columbus, Ohio
Bowers, Ray	Renton, Wash.
Canfield, Roy.....	Las Cruces, New Mexico
Hawk, Howard	
Merryfield, LeRoy	Ennis, Mont.
Preston, John C.	
Russell, Harold	
Thompson, J. B.	Salesville, Mont.
Van Meter, Thomas	
Craven, Harold	

ROLL OF STUDENTS—1926-1927

Seniors

Paul Bischoff.....	Missoula, Montana
Chas. G. Kumler.....	Lewisburg, Ohio
Charles Bloom.....	Cook, Minnesota
Jose Logan.....	Eschague, Isabela, P. I.
Briggs Lund.....	Missoula, Montana
Lewis Matthew.....	Augusta, Montana
Everett Richards.....	Stevensville, Montana
Alban Roemer.....	Missoula, Montana
Carter Rubottom.....	Missoula, Montana
Mattison Spencer.....	Chicago, Illinois
R. E. Tennant.....	Missoula, Montana
H. H. Van Winkle.....	Bozeman, Montana

Juniors

Barkes Adams.....	Thompson Falls, Montana
Homer Anderson.....	Lead, South Dakota
Clarence Averill.....	Kansas City, Missouri
Lloyd Campbell.....	Wyoming, Iowa
Josephine Darlington.....	Missoula, Montana
Kenneth Davis.....	Missoula, Montana
John Emerson.....	Spearfish, S. D.
Nelson Fritz.....	Wilmington, Delaware
Andrew Krofchek.....	Colorado Springs, Colo.
Lee Merrill.....	Pasadena, California
Charles Rouse.....	Libby, Montana
John Shields.....	Butte, Montana
Clarence Spaulding.....	Bonner, Montana
Louis Vierhus.....	Portland, Oregon

Sophomores

Henry C. Abell.....	Riley, Kansas
Leonard Ashbaugh.....	Clear Lake, S. D.
John Boardman.....	Lowry, Montana
Quentin Boerner.....	Port Washington, Wis.
Louis Bossart.....	Nebraska
William Brener.....	Shawano, Wis.
Steve Carlson.....	Missoula, Montana
George Christensen.....	Washington
Gordon Cornell.....	Wisconsin
Howard Dix.....	Missoula, Montana
Hayden Ellis.....	Burrton, Mo.
Emil Ernst.....	New York City
Roland Hamilton.....	Washington, Pa.
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Lester Tarbet.....	Spokane, Washington
Louis Wendt.....	Missoula, Montana

Freshmen

John Adamson.....	Ronan, Montana
John Aiton.....	Bedford, Iowa
August Anderson.....	Shawano, Wis.
Fred Blaschke.....	Hickman, Nebraska
Luther Briner.....	Kenoska, Wis.
Charles Brooks.....	Greybull, Wyo.
Clarence Chasse.....	Cut Bank, Montana
Dean Coigdarripe.....	Long Beach, Cal.
Faye Coey.....	Opheim, Montana
John Coumbe.....	Oak Park, Ill.
Frank Curtiss.....	Galata, Montana
Jerome Dahl.....	Noble, Montana
John Fallman.....	Missoula, Montana
Donald Fenton.....	Bluffton, Ohio
Norman Fulmor.....	Anaconda, Montana
Joseph Grove.....	Glennwood, Minn.
Kenneth Hunter.....	Marmoth, North Dakota
Richard Johnson.....	Long Beach, Cal.
Aaron Knapp.....	Missoula, Montana
Raymond Ladiges.....	Alberton, Montana
W. E. Leland.....	Great Falls, Montana
Paul Lemmon.....	Judith Gap, Montana
Guy Lester.....	Miles City, Montana
Iver Love.....	Rudyard, Montana
Raymond McIntyre.....	Eden, Montana
Fred Mass.....	Missoula, Montana
Waldo Merrill.....	Sidney, Montana
Wilfred Miller.....	Havre, Montana
Daniel Moser.....	Hickman, Nebraska
Nils Nilsson.....	Opportunity, Montana
Barry Park.....	Portland, Oregon
Royald Pierson.....	Charlson, Iowa
William Powell.....	Lead City, South Dakota
Clarence Raskoff.....	Havre, Montana
William Rose.....	Hinsdale, Ill.
Henry Shipman.....	Lewistown, Montana
James Shoemaker.....	Wilkenburg, Pa.
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FORESTRY SCHOOL NURSERY A STATE BENEFIT

(Continued from Page 33)

farmers of the state and for the supervision of its planting on the farms; in this case through the agency of the Extension Service at Bozeman.

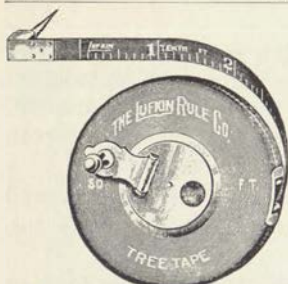
The cooperative agreement between the Chancellor of the University of Montana and the Forest Service of the Federal Government was completed in the Chancellor's office less than a month ago.

Cooperation similar to that contracted for in Montana has now been undertaken in some 30 other states. Of all the states only in Montana is there a School of Forestry selected as the direct cooperative agency for the production of nursery stock. The local school will have as a result of this perhaps the largest forestry school tree nursery in the world.

This cooperation in the production and distribution of tree plants among farmers of the United States should give a tremendous impetus to the whole cause of forest conservation and arouse a great interest in practical forestry. Dean T. C. Spaulding of the School of Forestry feels that the encouragement that will be given to forestry in Montana will be especially important and he particularly welcomes this opportunity to widen the scope of the forestry school and its ability to be of service to people all over the entire state.

Since properly composed tree plant allotments to farmers for windbreaks and shelter belts are necessarily made up of several species, some of which require two or three years for production in the nursery, that much time must elapse before complete planting allotments can be made to farmers of Montana through the Extension Service at Bozeman. The agricultural extension service at Bozeman is headed by Director J. C. Taylor. Professor F. M. Harrington, head of the Department of Horticulture, has immediate field supervision over the distribution and planting of the stock. Personal supervision of planting on farms will be given by the various county agents and representatives from Bozeman of the extension service.

Not many of the tree species recommended for dry-land planting are natives of Montana, and not many of them are of the large tree class. Many of them are importations from China, Manchuria, Russia, Siberia and other regions of rigorous climate. Perhaps the most useful species that is furnished for this purpose is the Caragana or Siberian Pea Tree. This is a large bushy

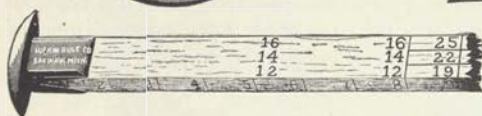

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shrub rather than a tree, although it reaches small tree size under favorable conditions. It is hardy in almost any part of Montana and is particularly well adapted to withstand cold and drought. It is grown to some extent in Missoula as a hedge plant and when kept properly trimmed is beautiful for this purpose.

These trees are indigenous to the lower Yellowstone and Missouri river valleys and are fairly hardy if given proper cultivation.

Valuable foreign species are the Chinese Elm and the Russian or Golden Willow, while not quite so hardy under conditions of drought is the Caragana; they are very hardy to cold and adaptable to most of eastern Montana if properly cultivated while they are small.

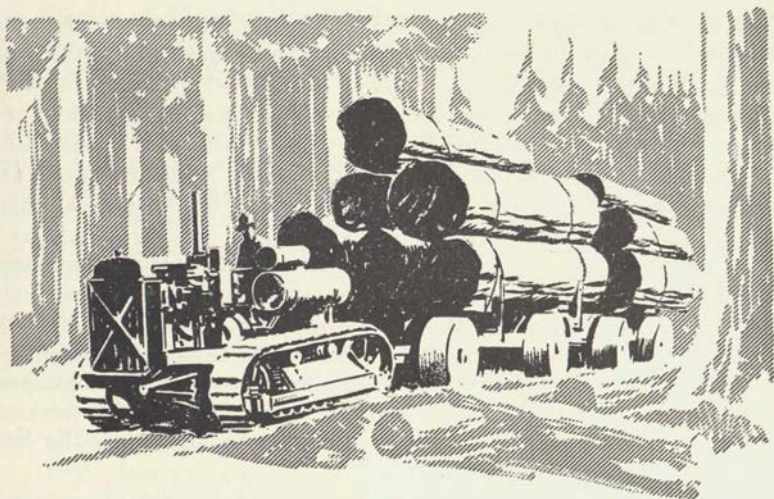
Of particular value for windbreaks are the Colorado Blue Spruce and the Black Hills White Spruce. The Blue Spruce is an especially beautiful tree and is commonly used in landscape gardening in Missoula, where as a horticultural variety it is generally known as Koster's Blue Spruce. The spruces have the disadvantage of being slow of growth but make a beautiful, dense high hedge. A good example of the adaptation of Spruce as a hedge plant may be seen at the home of Howard Flint of the Forest Service located just west of South Hall.

Scotch Pine, if the seed are northern grown, preferably from Finland, is extremely hardy under Eastern Montana conditions and has the advantage of being very rapid of growth.

Almost as good is Jack Pine from the northern part of the Lakes States.

Scotch Pine is of some use for background and mass planting in landscape gardening in local environments, and in clumps and small masses is suitable for park planting or particularly for country school yards. It cannot, however, be termed a beautiful tree, and its foliage is some what loose and open.

American, Elm, which, when grown under favorable conditions, is perhaps the most handsome shade tree in North America, has proved quite hardy for northern prairie planting, although it does not develop the handsome form and sweeping size typical of it when grown in more favorable locations. This tree is very suitable for planting in yards and parks in Missoula and is much more hardy to autumn frost, and winter cold and spring sun-scald than the maples that are more commonly grown here. The Camperdown Elm—not the grafted horticultural variety of drooping, wide spread habit known in Missoula sometimes as "umbrella tree," but the natural form of free upright habit makes a beautiful park tree and is extremely hardy. It grows much more rapidly than the America Elm and should be more generally planted in Missoula. One at the corner of Gerald and Central Avenues grew five feet in height last year. A specimen in Missoula grew from seed to a height of nine feet in 5 years. Our native Montana



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Yellow Pine is quite suitable for planting in eastern Montana whenever a little moisture is available and where the small trees are given some cultivation. Yellow Pine seed for eastern Montana use should, however, be from along the "breaks" of the lower Yellowstone river or from dry aspects in the Black Hills region of North Dakota rather than from Western Montana. Yellow Pine trees, in the few localities where the species is found east of the Rocky Mountains, develop thicker, shorter stems and lower crowns than does the Yellow Pine tree of Western Montana, and are more hardy to cold and drought. Of the oaks, only one species, a scrub white oak (*Q. macrocarpa*) is suitable for Eastern Montana planting and then only under quite favorable conditions. Several species of oaks can, however, be grown in Missoula and this vicinity. Several kinds of oak have made beautiful trees on our University campus. Among the best of these are the Red Oak and the Pin Oak.

Several of the poplars (or cottonwoods) are used to some extent for dry-land planting. Generally, however, they require a better moisture condition than can be maintained on the prairies of Eastern Montana. The most hardy of these is the Canadian Poplar which was originally an importation into Canada from Russia.

This Poplar has been quite largely planted in Butte and is the most common shade tree in that city of shallow soil and high altitude. It offers, however, the serious disadvantage that it is quite short-lived (although rapid growing), and at a comparatively young age it becomes subject to a canker rot that is fatal to it. It is not recommended for planting locally where we have so many other more suitable species and it is not generally recommended for planting in Eastern Montana.

When, after two or three years, as planting stock of proper size and age becomes available, the farmer or rancher makes his application at Bozeman for nursery stock, allotments for wind-breaks and shelter belts, he will be instructed how to first get his ground into shape for tree planting. If he is a so-called "dry-land" farmer, the Extension Service will first require that his ground be summer fallowed for a year with frequent cultivation to eradicate weeds and particularly to improve moisture conditions for next spring. This fallowed ground will be inspected by county agents or other representatives of the Extension Service before the trees are shipped. He will be given careful instructions on the ground in planting methods and in most cases, or where possible, members of the Extension Service will be present, when the trees arrive, to give personal assistance. Tree shipments will generally be made in the early spring about the time the frost is leaving the ground and while the stock is dormant. Fall planting, even

late summer and early fall planting, is quite feasible under favorable conditions of care and culture in Missoula and the Bitter Root valley but is not recommended for Eastern Montana.

If the dry-lander's conditions of soil and climate are particularly unfavorable he may be furnished the first year with stock only of Caragana, in order that he may develop a low dense hedge that in turn will cause the snow to drift and lodge on fallowed ground on its leeward side and thus establish a condition where less hardy species may be started. After planting, constant cultivation for several years is the price of successful tree culture on the treeless plains of Eastern Montana. Weeds must be kept out. A dust mulch must be maintained at all times. There is probably no region in Eastern Montana where trees of the more hardy species cannot be grown around the farm or ranch if these proper cultural conditions are carefully maintained. To one not a resident of Montana, the term "dry-land farm" is misunderstood.

Over most of the dry-land farm area of Montana the precipitation is greater than in Western Montana and more of it falls within the growing season. Corn is grown without irrigation, something rarely possible in Western Montana.

Farm plantings are generally classified as shelterbelts, windbelts, woodlots, and ornamental plantings.

The names shelterbelt and windbreak are often used interchangeably. When distinguished, the term shelterbelt is applied to trees planted in groups of considerable size or to a belt made up of a considerable number of rows, and is usually composed largely of deciduous or broad-leaved trees; while one or two rows to check the wind are called a windbreak. These narrow windbreaks are usually made of conifers such as Spruce, or other trees adaptable to hedge planting. Woodlots are generally groves or blocks of tree growth in which, in rigorous climates, the most hardy species are planted around the outside and the less hardy species within the interior of the group. Woodlots will generally be from an acre to several acres in area.

In the open country of high winds and low temperatures on the treeless plains of Eastern Montana, nothing adds more to the comfort of living than the protective influences of a windbreak or shelterbelt about the home. Windbreaks particularly add in the winter time to the comfort of domestic animals when the trees are planted in belts around barns, feeding sheds and corrals. Gardening without irrigation is often only possible on non-irrigable lands of Eastern Montana when soil moisture conditions are improved by the snow-lodgment and wind retarding effects of windbreaks.

Hot summer wind velocities over the great plains of all the other prairie states as well as in Eastern Montana are not uncommon at rates of from 15 to 30 miles per hour. Under such

conditions soil moisture evaporation may easily be five to six times as rapid as it would be on a calm, hot day. Under such conditions we are not apt to over-appreciate the ameliorating effects of farm tree-planting.

The Northern Plains Experiment Station of the United States Department of Agriculture at Mandan, North Dakota, has, for several years, been engaged in experimental work in prairie tree planting and in investigations with the effects of shelterbelts and windbreaks. The Canadian government, through their work at the Indian Head Experiment Station near Regina, Saskatchewan, have advanced even farther in this work than we have. It has been demonstrated that trees can be grown under all conditions on the prairie, and careful experimental work has proven the great benefits to agriculture of tree plantings on non-irrigable lands. It must not be thought, however, that experimental work is finished. The Agricultural Experiment Station at Bozeman is doing work at Bozeman and at the Huntley branch station, the Havre branch station and the Judith Basin branch station.

In our nursery at Missoula, besides undertaking the production in large quantities of the more commonly known species, we are experimenting with a large variety of lesser known species. An attempt is being made to secure seed of a number of other rarer species from high altitudes and barren plateaus of northern Asia. Considerable attention is also being given to the procurement of seed from extra hardy individuals and specimens of semi-hardy species.

Almost any householder of Missoula who loves trees has noticed that some individual specimens grow more rapidly or are of better form, or are noticeably more hardy than other specimens of the same species growing on his grounds or his neighbors' lots. This process of seed selection if far enough continued, is bound to fix desirable qualities. An attempt is being made to secure as much of our tree seed as possible from Montana grown trees. We are able, even within the limits of the city of Missoula and of the University campus to secure seeds from over 50 species of trees not native to this region but which are proven suitable and sufficiently hardy in this local environment.

The local School of Forestry started its original nursery on a small scale in an area just south of the new gymnasium some four years ago. We experimented there with some 100 different species of trees and developed some 25 kinds that were sufficiently hardy for nursery propagation in this region. Many of these species will be desirable for tree planting west of the Rocky Mountains but would not be suitable for planting in Eastern Montana.

We had but little notice that our cooperative agreement with the government would be completed in time for any cooperative nursery work during this growing season. The cooperative agreement between the Chancellor of the University of Montana and the

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The TIMBERMAN

An International Lumber Journal

GEO. M. CORNWALL, Editor, Portland, Oregon

The Missoulia Publishing Co.

Lithographers :-:- Printers

Publishers

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Forest Service of the Federal Government was completed in the Chancellor's office less than a month ago. In this short time the School of Forestry has ploughed and prepared four acres of ground located on the campus just south of the Milwaukee railroad tracks, and adjoining Prescott's ranch and the heating plant. In this new nursery location in the last 30 days we have planted seeds sufficient (if we have complete success) to produce over one million tree plants suitable for dry-land purposes. Seed had to be ordered by telegraph after the 20th of April and in many cases we had to accept old seed instead of that from new crops. On the other hand we have been greatly favored by a cold, late spring, and it is probable that we will have considerable success even in the first year.

The nursery is located almost in the mouth of Hellgate canyon and we shall have to contend with many difficulties yet unforeseen. It is to be anticipated that the drying effects of the summer winds up and down Hellgate will be more damaging than the cold winds of winter when the plants are mulched and put away to bed for their long winter's rest. Soil conditions are most favorable. We have a sandy, silt loam that can be worked under almost any weather conditions.

The largest part of our seeding is made up of some 20 species suitable for Eastern Montana planting. We are also experimenting with small lots of a considerable number of untried species so that we have planted in all this first season more than 50 different kinds of tree seeds.

All stock in the nursery is grown from seed except willows and poplars which are propagated from cuttings.

The business of growing trees from seed is not so difficult or intricate as one might suppose. It requires only about the same care and painstaking that is required of the florist who propagates perennial flowering plants from seed.

Seeds of all the conifers and of a few such small seeded delicate deciduous trees as Elm and Birch are planted in seed beds. These beds are generally from 40 inches to 4 feet in width and of any length, so that they can be reached into from either side for weeding and cleaning. The soil is very carefully prepared and must be free of stones and other foreign material. Most tree seeds are very small and are usually covered to a depth of only one-fourth inch, preferably with loose sandy loam. The beds are then soaked down thoroughly with water and covered with mulch. This mulch, depending upon soil and weather conditions and species, may be of either leaf mould, lawn clippings, burlap, cheap cotton cloth or sometimes paper. Some species do not need to be mulched and in regions of heavy rainfall mulches are not generally used.

The seed beds must now be watched carefully in order that

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Booklet fully describing—free.

American Steel & Wire Company

DENVER

SALT LAKE CITY

"THE DRIVE"

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At noon we pass the cooks pit-pan, and stop for breakfast, some six hours late. At four that afternoon, the creek is twenty feet above low water mark, and the rain continues. The rollways have all been cleaned, and the drive is half way at the boom. The sixty Indians, composing the three driving crews, have eaten, Lord knows how, and they'll sleep, tomorrow, when the drive reaches the boom. And so, we go into the second night. The woods boss, and I, somewhat tired. Our Indians as hilarious and full of the devil as ever. Tomorrow sometime, if our luck holds, if our creek does not overflow its banks, and if the pocket on the fin boom stands the strain, we'll be able to turn our logs over to the lower river crew, and rest a spell.

FORESTRY SCHOOL NURSERY A STATE BENEFIT

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the mulch may be removed as soon as the seedlings show above the ground. As soon as the mulch is removed the seed beds are covered with shade boxes made by covering large box frames with lath. These shade frames are arranged to give different degrees of shade and light by varying the spaces between the laths, depending upon the species and weather conditions. The shade boxes protect from drying winds as well as from the hot sun. The beds must be kept constantly watered during the first summer.

Depending upon the species and the rate of growth attained the little seedlings of spruce and pine and other conifers are transplanted from the seed beds into transplant rows early in the second or third spring or sometimes in late fall of the third year, and after a year in the transplant rows are ready for shipment to the farmer or for planting out in deforested areas for reforestation purposes.

Broadleaf trees are more easily grown but require much more room in the nursery. Their seeds are generally planted in drill rows just far enough apart to allow for cultivation with a hand wheel-cultivator. They are handled in the nursery much as the back-yarder will work his garden. Some of the tree seeds that are winged, such as the Ash and Maple, must be planted by hand in drill rows since the seeds do not pass readily through a drill seeder.

An acre of nursery ground planted in rows a foot apart to Maple, Ash or Caragana should yield about 250,000 transplants.

There is an abundance of tree seed of a great many different species produced throughout the spring, summer and fall in Missoula. And the amateur gardener can find no more fascinating work than the propagation of some of these for his own use and for his friends in his own backyard garden. The rate of growth of many of the broadleaf species of trees is truly surprising. Box Elder will reach a height of two feet in one year, when it can be transplanted to make a good hedge along a back property line. It reaches a height of four or five feet in three years when it is of better size for planting in parking or lawns than if it were larger. Most of us make the mistake of planting trees that are too large.

Trees will become better established and will make a better future growth if they are not more than three or four feet in height when they are put into their permanent position.

Caragana, which in our Missoula climate makes a beautiful hedge, can be grown from seed to small hedge size in two or three years. For this purpose the seed may well be planted where the hedge is desired, and should be spaced about one inch apart in the

line, with the idea that some of them may be thinned out afterward.

There are a large number of reputable seed dealers in the country who can furnish fresh seed of any species that cannot be readily gathered locally. The seeds are inexpensive. An ounce of spruce seed containing 12,000 seeds that should produce 8,000 little trees may be had for 40 to 50 cents. Seed sufficient to produce 10,000 Caragana plants can be had for \$1.00.

Seed of Elm and Birch should be gathered in late spring and planted immediately. Box Elder seed and the soft maples mature in the summer and may be planted in the late fall or stored with dry sand in the cellar and held over for spring planting. Seeds of the hard maples matured in late fall may be raked up by the bushel in the early spring along the parkings of Missoula streets and planted at once. Large seeds of oak, walnut and the like should be gathered in the fall as soon as ripe and planted in late fall at the end of the growing season.

Dwellers in Missoula have done more to beautify their Garden City with tree planting than has been done in any other city in the state, except perhaps Great Falls.

It is not the province or purpose of the University nursery to furnish nursery stock to city residents although small quantities may often be available at prices a little above cost. Town dwellers who do not prefer to grow their own stock from seed are advised to purchase their tree plants from Montana nurserymen, of whom there are reliable companies in the vicinity of Missoula and throughout the state. Nursery companies are able to furnish selected specimen trees of better quality than the run of forest nursery stock.

BUILDING COLUMBIA GORGE

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And right where the torrent widened
He stood with his mighty spear
And said, "I'll get sir mister fish
When he comes out through here."

Well, Paul had his fish for supper
But there's no more inland lake,
And the Columbia river rages through
Right where he made the break.

Now some say this is a fable,
But I know that it is true,
For I have it straight from a logger,
Just as it's told to you.

DEATH OF THE OLD BLUE OX.

OTIS T. HOWD.

This is a tale of the west land,
The farthest end of the earth;
A tale of the great Northwest land
Where every man proves his worth.

Cascade was king of the mountains,
Puget was lord of the sea,
Though Paul Bunyan took their orders,
Mightiest of all was he.

He dug the Sound for old Puget,
He built the peaks for Cascade,
Like the last great dream of a painter,
The Olympic mountains he made.

But he was gyped by St. Helens
On plans for a mountain mold,
So he pastured his ox and traveled
To the north in search of gold.

He stopped at the mighty Yukon.
It looked like a likely stream,
He never looked at his tailings,
He was only after the cream.

But his palns were to ambitious
And they'll tell you to this day
Of how Bunyan panned the Yukon
But couldn't make it pay.

But about that time came rumors
Which he soon found were true,
How two friends took a contract
And could not put it through.

It seemd that Joe McFrau
With his friend, the Terrible Swede,
Had started to earn a grubstake
Of which they stood in need.

They started to level the prairie,
But their knowledge was not an iota,
So soon the two were stranded
In the Bad Lands of Dakota.

They wrote to old Paul Bunyan
And asked if he would bring
His old blue ox and help them
Finish the job in the spring.

So Bunyan took his blue ox
And started on his way,
Right in the dead of winter,
For he wanted to finish in May.

But hills and plains were buried
Full two squaws deep in snow,
And passes were filled to the summit,
So they told him 'twas foolish to go.

But Paul would not listen to reason,
He had too much faith in his bull,
He swore that the snow couldn't stop him
E'en though the Great Basin was full.

But as he reached the Rockies
And camped by a pile of rocks
The snow came down so thickly
He couldn't see his ox.

The temperature dropped swiftly;
It seemed a hundred below,
The coals from the fire were frozen
Before they had ceased to glow.

You've often heard of blue cold
And wondered if it was true,
But it got so cold that winter
That even the snow was blue.

The blue ox froze and Bunyan
Was never the same again,
He wandered, God knows whither,
Away from the haunts of men.

But clear to the end of history
And wherever the logger may go,
You'll hear how perished the blue ox
In the year of the great blue snow.

FOREST GROWING

In its final analysis, forest growing constitutes a land use problem. Inevitably our mature timber stands will be and should be removed. These areas long since passed the stage of maximum production in quantity or quality of material and, in many instances, are actually deteriorating through effect of old age and disease.

Inevitably, too, areas, from which forests are removed and which, from character of soil, location and topography, are suited to agricultural or other uses, will not be maintained for forest growing purposes. The growing of trees, even under favorable conditions, is not a highly remunerative enterprise. Where protection has reached a high state of perfection and revenue laws stabilized, it is, however, considered an unusually safe investment. Here in the West, vast areas now bearing timber crops are doubtless only suited to producing such a crop. No other use for these areas has been discovered, and there is little hope for such discovery.

It so happens, however, that wood is, perhaps, more indispensable than any other material. In some form, it enters into more than 2,000 articles of daily use. Forests, unlike many other resources, are replaceable, and, here in the West, such replacement usually comes about with comparative ease.

Moreover, the greatest industry in many of our states is dependent for existence upon permanent forest crops, and it would be strange, indeed, if we remained indifferent as to the future of our forests and our principal payroll industry.

Marked advance has been made along lines of forest protection and utilization, although it is fully realized there is still opportunity for vast improvement in the whole field of forest land management.

It must, however, be recognized that, in the management of forest properties, with a view to continuous production, there are economic, legislative and even physical obstacles to be overcome before commercial forest growing can be considered a sound business venture.

If commercial forest growing is to prove successful and make possible use of at least a major portion of our forest land area, there must be brought about proper public understanding of the present-day difficulties encountered by one attempting to grow forest crops.

Given adequate laws governing forest taxation, protection of forests against loss through fire and other enemies, together with proper public sympathy and desire to aid an enterprise in which the public is vitally interested, there is no reason why sufficient raw material should not be annually or periodically produced to maintain for all time a great lumber industry in our Western country.

Fortunately, our supplies of raw material are such that there is still time to bring about this desirable condition without costly interruption and unpleasant experiences, but, to accomplish this, action cannot be delayed. We must not lose sight of the fact that long periods are involved in the growing of new forests and this involves unusual foresight, if good results are to be obtained.

The Student Body of the University of Montana, and particularly those who will make Forestry their life work, can and should do much to bring about intelligent understanding of our forest problem and point the way to reforms which will make commercial forest growing not only a possibility but an attractive enterprise.

Weyerhaeuser Timber Company
Tacoma, Washington

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